## MINING ENGINEERING INDEX TO VOLUME 29 / January December 1977

# PART 1. Industry News and Feature Articles

☆ Denotes feature article

☆ annual review. Feb 77, 82 at Black River Falls mine. Feb 77, 13 Aggregates:

☆ annual review. Mar 77, 71

Aimone, J.T., Haworth, G.R.: 
☆ How Major New

Mines will be Financed in the Future. Sep 77, 30

venture in Kotzebue. Nov 77, 18 Alaska-Juneau mine, water storage at. Oct 77, 22 Alexander, J.H.: & Lithium. Mar 77, 66 Allen Potash Mines, government takeover. Apr 77 28

Aluminum, Aluminum Ores:
Anaconda expands Sebree plant. Apr 77, 24

± annual review. Mar 77, 54

Comalco to expand Weipa. Jul 77, 26

Jamaica-Kaiser partnership. Apr 77, 21

kaolin, aluminum from. Mar 77, 63

recovery in seaborne trade expected. Apr 77, 12

Reynolds to open Australian refinery. Feb 77, 28

Solomon Island project scrapped. Sep 77, 26

Worsley project, Australia. Sep 77, 19

Amax Coal Co., Eagle Butte EIS. Oct 77, 22 Amax Exploration: acquires potential molybdenum property. Aug

77, 15 Mt. Emmons, Colo. Nov 77, 18 Amax Nickel Co.:

Amax, Inc.:

buys Agnew nickel. Aug 77, 15; Sep 77, 27 Crested Butte molybdenum discovery. Oct 77, 22 scraps Forrestania study. Apr 77, 28

scraps Forrestania study. Apr 11, 29
American Association for the Advancement of Science:
hears mining spokesmen. Apr 77, 11
American Mining Congres (AMC):

defends diesel safety. Dec 77, 9

Amoco Canada Petroleum Co., Ltd.;
gold bearing zones in Ontario. Jan 77, 10

Amoco Minerals Co.:

joins Ok Tedi consortium. Jan 77, 10 Amoco Oil Co.:

awarded ERDA contract. Nov 77, 18
Anaconda Co., The:

consolidates office in Denver. Jun 77, 21 expands Sebree aluminum plant. Apr 77, 24 № Park City concentrator. Nov 77, 26 reaches compromise on OPIC claims. Jun 77, 19 suspends Victoria mine operation. Sep 77, 19

Anglo American Corp.: develops Middleplats manganese. Apr 77, 28 Appleyard, F.C.: & Gypsum. Mar 77, 62

Asarco resumes operations. Dec 77, 18
Oracle Ridge development planned. Sep 77, 21
resolvent exchange, Cyprus Bagdad. Sep 77, 38

Arizona Public Service Co.: interest in Wyoming uranium. Aug 77, 16

confers with EPA. June 77, 14
continue negotiations on Caladay. Jun 77, 19
Cuajone to reach full production. Jun 77, 5

☆ Leadville concentrator. Nov 77, 26

☆ Park City concentrator. Nov 77, 26
resumes Arizona operations. Dec 77, 18
signs property contract. Idaho. Apr 77, 25

☆ Tennessee zine mines. Nov 77, 21

☆ Young zine mill. Nov 77, 25

Asbestos (see also Industrial Minerals):

reannual review. Mar 77, 52

Canadian Johns Marville halts operations in Quebec. Jun 77, 9

industry takcover, Quebec. Dec 77, 20 Quebec considers nationalization. June 77, 9 & Asbestos: E. A. Farrell. Mar 77, 52 Asbestos Corp.:

takeover by Quebec. Dec 77, 20
Atlantic Bichfield Co.:

attainte ofeninea Co.: uranium complex, George West, Tex. Feb 77, 48 Atlas Consolidated Mining and Development Corp.: supply copper to China. May 77, 18 Atlas Copco:

hydraulic drills, Stekenjokk mine. Dec 77, 23 Atlas Corp.:

continues uranium exploration. Feb 77, 28 Auer, D.L.: & Bentonite. Mar 77, 55

Australia:
Dravo subsidiary awarded contract. Aug 77, 17

getting into nuclear age. Jan 77, 16
interview with prime minister. Jan 77, 34
Mary Kathleen operations. Jan 77, 24
ministral policy. Los 27, 35

mineral policy. Jan 77, 35 Mt. Isa Mines to construct tallest stack. May 77, 18 pew mining projects. Jan 77, 36

Northern Territory: Otter Exploration N.L. explore for uranium. Jun 77, 21 Ouerusland:

Fluor Australia Ltd. contractor, Norwich Park coal mine, Jul 77, 30 Otter Exploration N.L. to explore for uranium. Jun 77, 21

Ranger uranium project. Oct 77, 14

to uranium exploration. Jan 77, 21
uranium export contracts. Sep 77, 26
Uranium export contracts.

Utah Development Co., Bowen Basin. Jan 77, 28 Western Australia: Amax Nickel buys Agnew nickel. Aug 77, 15

Conzinc Riotinto to assess mineral sands. Jun 77, 22 MIM Holdings, Mt. Goldsworthy. Aug 77, 17

Australia's Top Money-Maker: Coal. Jan 77, 26
 Automation:

☆ improvements in roof bolting. Jul 77, 51
☆ mill controls at lead-zinc mills. Nov 77, 26
⇒ spiral drill-and-blast concept. Jun 77, 29
☆ Stekenjokk mine, Sweden, Dec 77, 22
☆ underground mining, Feb 77, 42

Barber-Greene Co., iron ore system. Apr 77, 24

☆ annual review. Mar.77, 53 Halliburton to supply Iran. Aug.77, 18 ☆ Barite: R.M. Stevens. Mar.77, 53 Bates, R.C.: ☆ Rock Sealant Restricts Falling Barometre Effect. Dec.77, 38

Baukol-Noonan, Inc.: ☆ lignite, North Dakota, Aug 77, 24 ☆ Bauxite and Alumina: W.D. Michell, Mar 77, 54

Bay Shipbuilding Corp.: carrier for Oglebay. Feb 77, 28 Bear Creek Uranium Co.:

★ Bentonite: D.L. Auer. Mar 77, 55

Beryllium:
Brush Wellman to expand. Feb 77, 28

Bethlehem Steel Corp.: patent, ore reduction. Oct 77, 22

Oct 77, 35

Bituminous Coal Operators' Association (BCUA):

miner training. Jan 77, 14 Bituminous Coal Research, Inc., mine illumination Sep 77, 24

explosives tagging. Oct 77, 13 the long hole, thick coal seam. Oct 77, 35 Madrigal mine, Peru, Nov 77, 22

Madrigal mine, Peru. Nov 77, 22 ☆ mine accidents. Nov 77, 36 ☆ spiral drill-and-blast concept. Jun 77, 29

Brameda Resources Ltd.: sells Sukunka interest. Mar 77, 30

major bauxite supplier by 1980. Apr 77, 12 rmining outlook. Dec 77, 40

British Petroleum Co. Ltd., ocean mining venture. Mar 77, 30

Brooks, R.E., et al.: 

\$\times \text{Spiral Drill-and-Blast Concept may Speed up Tunneling Advance Rate.} \text{Juo 77, 29}

Brush Wellman, Inc.:
\_\_to expand in Utah. Feb 77, 28
Bunch, J.P.: 

Open Pit Mining. Feb 77, 37

Bunker Hill Co., smelter emissions. Sep 77, 22
Burlington Northern Railroad serves Cordero mine.
Aug 77, 11

Cadmium:

Call, R.D., Savely, J.P., Nicholas, D.E.: \(\triangle Preliminary Data Collection for Pit Slo\): \(\triangle Design. \) Apr

Callahan Mining Corp.: continues negotiations on Caiaday. Jun 77, 19 defers Virginia Zn-Cu project. May 77, 16 Camflo Mines Ltd., uranium exploration, Manitoba.

Jan 77, 13 Campbell, D.L.: ☆ Geophysics. Feb 77, 64

Afton copper mine. Mar 77, 30 Cominco expansion program, Trail. Jun 77, 13 Granby Mining, Boliden negotiate. Aug 77, 18 1977 exploration expenditures. Sep 77, 27 Northair opens Au-Ag mine. Aug 77, 17

retroactive tax. Oct 77, 24 CANMET to study methane drainage. Jul 77, 30 five companies merge. Jun 77, 22 Inco forms Inco Metals Co. May 77, 18

★ lead-zinc market perspectives. Nov 77, 34
Lingan mine, automated coal handling. Jun 77, 16
Newfoundland:

1976 mineral production. Apr 77, 28 Northwest Territory: Terra Mining & Expl. finds silver. Aug 77, 17

Terra Mining & Expl. finds silver, Aug 77, 17 Ontario:

Ego, Canso explore for copper, silver. Feb 77, 30 Kidd Creek development curtailed. Dec 77, 16 Thierry to reduce output. Aug 77, 18 Twin fans part Denison Mines ventilation. Aug 77, 18 United Canso, endd vein pear Coudreau, Jun 77

17, 18 United Canso, gold vein near Goudreau. Jun 77, 22 Ouebec:

Asbestos Corp. takeover. Dec 77, 20 exploration program awaited. Jun 77, 9



Saskatchewan former Duvall mine evaluated. Feb 77, 30 Hudson Bay Potash assets sold. May 77, 12 inquiry slows uranium development. Mar 77, 16 Potash Corp. to expand Cory. Jul 77, 30 Potash Corp. acquires Duval mine. May 77, 12 uranium production plans. Sep 77, 28
Yukon, Minto-Def development postponed. Jun, 21 da's Reserve Base Assures Future Supply. Nov 77.34 Catalytic, Inc., coal fragmentation process. Jul 77, 28 Caterpillar Tractor Co., largest dozer. Nov 77, 11 Cement: Central Queensland Coal Associates, Peak Downs mine. Jan 77, 30 Cerro Marmon Corp.: Cuajone to reach full production. Jan 77, 8 venture by Kloeckner, Ferbasa, Brazil. Jan 77, 12 environmental award. Aug 77, 17 terminates mineral exploration. Dec 77, 19 Classification: coal cleaning trends. Oct 77, 51 designing, crushing, screening plants. Jul 77, 65
Clayton, G.D., Dimock, R.R.: & Kennecott's Delayed Blasting Technique Cuts Costs, Improves Pit Stability. Apr 77, 37 Cascade iron studies. Jan 77, 12 reports 1976 earnings. Mar 77, 28 Coal Ada Resources to supply Duke Power. Aug 77, 16 Australian production. Jan 77, 27 Boeing, 15% share in Peabody Holding Co. May Catalytic, Inc., coal fragmentation. Jul 77, 28 economics vs. nuclear energy. Jul 77, 11 Exxon to explore, Colombia. Feb 77, 30 ☆ federal leasing. May 77, 23 federal leasing regulations. Feb 77, 14 handling facilities. Jun 77, 16 industry conversion problems. Jun 77, 13 Inland prospect, Marshall, Ill. Feb 77, 28 Kaiser signs sales contract. Dec 77, 19 lignite symposium. Jul 77, 24 NCA revises production forecast. Sep 77, 18 Nevada Power buys UV coal. Feb 77, 28 Northern Great Plains field. Jan 77, 7 Ohio, reclaiming stripped land. Nov 77, 18 Pickands Mather signs reserves option. Jun 77, 20

Pickands Mather signs reserves option. Jun 77, 20 prospecting permits invalid. Sep 77, 9 Pullman-Torkelson, train loading facility. Jun 77, 18 
☆ research, development. Mar 77, 47 
synthetic fuels based on. Mar 77, 45 
test, Russian coal. Feb 77, 23 
☆ transportation to market. Oct 77, 49 
US Steel, western coal expansion. Jul 77, 21 
world production. Jan 77, 26 
Coal Mining:

Joal Mining:
A.T. Massey, steam coal from Mingo County complex. Jun 77, 18

☆ calculating dragline reach. May 77, 35
CANMET studies methane drainage. Jul 77, 30
Consol, hydraulio mining system. Jul 77, 14
Decker in Montana. Jan 77, 12
diesel equipment safety. Dec 77, 9
draft EIS, East Gillette mine. Jul 77, 11

☆ falling barometer affects mine sealant. Jun 77, 39
Farmland mining moratorium. May 77, 11
Fluor Australia contractor, Norwich Park mine.

Jul 77, 30

★ lignite, North Dakota. Aug 77, 24

Lingan mine automated handling system. Jun 77, 16

★ Mapco Martiki mine. Oct 77, 46

MESA regulations proposed. Mar 77, 14

MESA, ground check monitors required. May 77, 16

☆ methane control. Oct 77, 41
☆ new surface mines. Mar 77, 33
Pickands Mather, Carolina P&L to develop mine.
Jun 77, 18
productivity declines. Sep 77, 9

recovery, strip, auger. Oct 77, 48 review, surface. Mar 77, 33 review, underground. Mar 77, 38 ☆ roof bolting improvements. Jul 77, 51 storage silos, Jacobs Ranch mine. May 77, 11 Sunedco dedicates Cordero mine. Aug 77, 9 ☆ Coal Mining Technologists are A New Force in the Labor Pool. G. Eadie. Jan 77, 46

Coal Preparation:

☆ annual review. Mar 77, 42

☆ at Blackwater mine. Jan 77, 29
chemical comminution process. Jul 77, 28
coal cleaning trends. Oct 77, 51
Consol, pumping slurry to plant. Jul 77, 14
Cordero plant specifications. Aug 77, 11
Dravo subsidiary, contract Australian plant. Aug

Coal Utilization: ☆ annual review. Mar 77, 43 Carter conversion plan problems. Jun 77, 13 C-E gasification test plant. Dec 77, 9 Conoco awarded gasification contract. Aug 77, 17 Erie, gasification for pelletizing fuel. Jul 77, 22 Exxon Donor Solvent process. Oct 77, 16 ☆ fluid bed combustion. Mar 77, 44 gasification, test plant. Dec 77, 9 in grate-kiln system. Feb 77, 13 lignite, answer to boiler slagging. Jul 77, 24 ☆ lignite, North Dakota. Aug 77, 24 à magnetohydrodynamics. Dec 77, 34 obstacles, conversion plans. Jul 77, 18 on-site gasification for pelletizing fuel. May 77, 9 slagging gasifier, ERDA. Jul 77, 24 SO<sub>2</sub>, climatic changes. Sep 77, 14 ☆stack gas scrubbing. Mar 77, 44 underground gasification. Dec 77, 16 Coburn, J.L., Mortenson, D.K., *⇔ Mill Design*. Feb

Coeur d'Alene Mines: mill operation. Mar 77, 28

plant. Dec 77, 9
Cominco, Trail improvements. Jun 77, 13
Compania Minera del Madrigal, Madrigal mine.
Nov 77, 22

coal gasification test plant. Dec 77, 9 Consolidation Coal Co.: ± lignite. North Dakota. Aug 77, 24 Continental Minerals Corp., Oracle Ridge development. Sep 77, 21 Continental Oil Co.:

Consolidation Coal Co., hydraulic mining system. Jul 77, 14 Conoco Coal Development Co., ERDA coal gasification contract. Aug 77, 17 expands uranium mill. Sep 77, 13 Florence copper deposit. Jan 77, 14

Continuous Mining:

\$\pm\$ annual review. Mar 77, 48

A.T. Massey to use. Jun 77, 18

Consol to use. Jul 77, 14

\$\pm\$ roof bolting improvements. Jul 77, 51

MESA, ground check monitors required. May 77, 16

Conveyors, Conveying: coal handling. Jun 77, 16 Cordero plant. Aug 77, 11 extensible bridge conveyor. Sep 77, 18 & surface mining review. Feb 77, 40

Conzine Riotinto of Australia: abandons bauxite project. Sep 77, 26 Hail Creek terminated. Oct 77, 22 Mary Kathleen mine. Jan 77, 24 Coombs, G.: ☆ Diatomite. Mar 77, 58

Copper, Copper Ores: Asarco, EPA confer, Tacoma smelter. Jun 77, 14 Asarco resumes Arizona operations. Dec 77, 18

Atlas Consolidated, supply China. May 77, 18 Callahan Mining defers Ou-Zn property. May 77, 16 Colville Tribes consider mine. Jun 77, 19 Conoco Florence project. Jan 77, 14 consortium to develop Fiji prospect. Feb 77, 30 conveyor haulage, Sierrita Duval. Nov 77, 7 cost, pollution control. Nov 77, 5 Cuajone production. Jan 77, 8 developments, Cyprus. Nov 77, 7 Duval suspends mining, Arizona, Nevada. Aug Ego Mines to explore, Ontario. Feb 77, 30 ☆ energy conservation, smelting. May 77, 38 ☆ Ertsberg. Jun 77, 33 Fluor Utah, Indonesian exploration. Jul 77, 30 Hecla suspends Lakeshore operation. Dec 77, 18 hydrometallurgy annual review. Feb 7₹, 80
Inco forms Inco Metals Co. May 77, 18 Kennecott expansion program. Jul 77, 18 KCC Nevada Mines to resume. Jan 77, 14 Kidd Creek smelter/refinery curtailed. Dec 77, 16 ☆ Madrigal mine. Nov 77, 22 Minto-Def development postponed. Jun 77, 21 Namosi deposit, Fiji. Oct 77, 18 new Cyprus process. Oct 77, 20 Occidental, Miami, Ariz. Nov 77, 13 Oracle Ridge mine plan. Sep 77, 21 Papua-New Guinea encourages Star Mountain exploration. Jun 77, 22 production begins, Afton Mines. Mar 77, 30 ☆ recovery, Rosebery mill. Nov 77, 28 reduced production, White Pine. Feb 77, 38 San Juan province reserves, Argentina. Feb 77, 30 Sar Chesmeh refining plant. Dec 77, 20 Saudi Arabia funds Oman mining, Aug 77, 15 Standard of Indiana joins Ok Tedi study. Jan ☆ Stekenjokk mine, Sweden. Dec 77, 22 Thierry to reduced output. Aug 77, 18 UN report on reserves. Aug 77, 12 water treatment plant, Cerro de Pasco. May 77,

18
Copper Range Co.:
White Pine reduces production. Feb 77, 28
Costs:

air pollutjon, nonferrous industries. Nov 77, 5
Australia coal productivity. Jan 77, 27
Australia uranium projects. Jan 77, 20
coal vs. nuclear power. Jul 77, 11
Denver Research Institute, cheaper hydrogen sponge material. Jul 77, 30
☆ designing crushing, screening plants. Jul 77, 65
☆ energy conservation, smelting. May 77, 38
ERDA and US uranium resources. Aug 77, 15
☆ foreign vs. domestic exploration. Jun 77, 40
☆ friction rock stabilizers. Jul 77, 59
Kennecott expansion. Jul 77, 28
on-site vs. central coal gasification. May 77, 9
☆ solvent extraction, Cyprus Bagdad. Sep 77, 38
☆ spiral drill-and-blast concept. Jun 77, 29
Superior Oil Co. shale recovery. May 77, 14
Texasgulf closes Fannet. May 77, 18
Thierry cuts production. Aug 77, 18
Cox, D., Conway, J., Gooch, A.: ♠ Yielding Rock-

joint venture, iron ore. Apr 77, 28

scales down Carajas project. Sep 77, 28 Cunningham, J.L.: & Magnesium Compounds. Mar 77, 67 & Cyprus Bagdad's Solvent Exchange Process. R.L.

Jones. Sep 77, 38 Cyprus Mines Corp.: copper wirebar process. Oct 77, 20 uranium, copper operations. Nov 77, 7

Davis, J.G., Thakur, P.C.: 

thane Control in Underground Coal Mines. Oct
77, 41

Davis, W.L., Jr., Sharma, S.N.: 

Energy Conservation: A New Challenge for Copper Smelting. May 77, 38

Davy Powergas Ltd., Espindeza zinc process. Jul

Day Mines, Inc.: negotiations on Caladay property. Jun 77, 19 Decker Coal Co.:

new mines, Montana. Jan 77, 12 Deep Bay Graphite Co., Ltd.: graphite mine, Saskatchewan. Jan 77, 14

Degasification: CANMET, methane drainage study. Jul 77, 30 ☆ methane control, planning. Oct 77, 41

Denison Mines Ltd.: mine ventilation program. Aug 77, 18

Denver Research Institute: cheaper hydrogen sponge material. Jul 77, 30

Dewatering: ☆ Stekenjokk concentrator. Dec 77, 25

Diamonds:

V

Birim river, Ghana, reserves announced. Feb 77,

discovered, Colorado. Jun 77, 19 Diatomite:

☆ annual review. Mar 77, 58 Witco opens Quincy mine. Dec 77, 10 Diatomite: G. Coombs. Mar 77, 58

Diaz, L.S.: ☆ Operating Controls. Feb 77, 86

Dick, R.A., Gill, J.G.: ☆ Metal and Nonmetal Blasting Accidents During 1975-76. Nov 77, 36

Dillingham Corp.: subsidiary claims loss. Jul 77, 26

Dimension stone:

annual review. Mar 77, 58 ☆ Dimension Stone: W.R. Power. Mar 77, 58
Dimock, R.R., Clayton, G.D.: ☆ Kennecott's Delayed Blasting Technique Cuts Costs, Improves Pit Stability. Apr 77, 37

Draglines

☆ calculating reach. May 77, 35 four new at Norwich Park mine. Jul 77, 30

☆ lignite, North Dakota. Aug 77, 24
Dran, J.J., McCarl, H.N.: ☆ An Examination of Interest Rates and Their Effect on Valuation of Mineral Deposits. Jun 77, 44 ☆ Dravo Corp. lime complex. Apr 77, 56

☆ Dravo Corp. Stakes a Claim in the SO<sub>3</sub> Scrubber Market. Apr 77, 56

Dravo Pty. Ltd.:

coal washing plant, Australia. Aug 77, 17 Drifting, Drifts:

☆ hydraulic drilling, Stekenjokk. Dec 77, 22 ☆ methane control. Oct 77, 41 rayielding rockbolt. Apr 77, 53

Drilling:

# Asarco Tennessee mines. Nov 77, 21 Blackwater mine. Jan 77, 28 Blasthole, Marion M-4. Mar 77, 82 ☆ delayed blasting replaces preshearing. Apr 77,

Fluor Corp. subsidiaries drive adit. Jul 77, 30 horizontal core drilling. Apr 77, 7 ☆ hydraulic, Stekenjokk mine. Dec 77, 22 ☆ Madrigal mine, Peru. Nov 77, 22 Mary Kathleen mine. Jan 77, 25 ☆ pit slope design, data for Apr 77, 45 South African test, downhole rig. Nov 77, 8 ☆ spiral drill-and-blast concept. Jun 77, 29 strace mining review. Feb 77, 37

à underground mining review. Feb 77, 44

Dudley, W.W., Jr.: à Hydrology. Feb 77, 68

Dunning, E.L.: à Trained Manpower Provided by Mining Technology Programs. Jan 77, 48

Duval Corp.: conveyor haulage, Sierrita. Nov 77, 7 plans SX-EW plant. Apr 77, 24 production cutback. Aug 77, 15

Eadie, G.: \$Coal Mining Technologists are a New Force in the Labor Pool. Jan 77, 46

Earth Resources Co.: DeLamar silver mine. Jun 77, 18 

Australia iron ore productivity. Jan 77, 32 Australian coal outlook. Jan 77, 26 ⇔ Boliden-Sweden royalty agreement. Dec 77, 22
 ⇔ Brazilian mineral production. Dec 77, 40 cheaper hydrogen sponge material. Jul 77, 30 coal vs. nuclear power. Jul 77, 11 Conzine Riotinto, assess mineral sands operations. Jun 77, 22

earth bottom thickeners. Aug 77, 36 ERDA, US uranium resources. Aug 77, 15 ERDA, uranium mining and milling. Jul 77, 13 farmland mining moratorium. May 77, 11 ☆ federal leasing. May 77, 23 ☆ financing major new mines. Sep 77, 30 ☆ foreign vs. domestic exploration. Jun 77, 40 ☆ geophysical expenditures for mining. Feb 77, 64 rates, mineral deposit valuation. Jun 77.44 Japan, Australia iron ore trade. Jan 77, 31 Kennecott expansion program. Jul 77, 28 Mary Kathleen financing. Nov 77, 18 MECO acquisition. Feb 77, 28

mineral availability system, USBM. Sep 77, 43 ☆ mineral stockpiles recommended. Apr 77, 41 mining depleted oil deposits. Jun 77, 21 Minto-Def postponed. Jun 77, 21 National Energy Act. Oct 77, 18 new investments, Australian iron ore. Jan 77, 33 on-site vs. central coal gasification. May 77, 9 precious metals from sewage sludge. May 77, 11 problems, Third World countries. Mar 77, 13 silver market optimism. Feb 77, 23 Sunshine mine strike loss. May 77, 16 Superior Oil Co. shale recovery method. May 77,

Texasgulf closes Fannet. May 77, 18 Thierry output cut. Aug 77, 18

 ★truck productivity, Cyprus Pima. Aug 77, 40
 ★weighted average cost of capital. May 77, 42
 ★Economics of Foreign vs. Domestic Mineral Exploration, The: E.A. Scholz, A.G. Spat. Jun 77,

Education

curriculum evolution. Jan 77, 48 demand, outlook for graduates. Jan 77, 39

☆ ECPD accreditation, technology program. Jan enrollments, mining. Jan 77, 43 financial aid, surface mining law. Oct 77, 27 ☆ first job. Jan 77, 51 four-year technology programs. Jan 77, 48 future trends. Jan 77, 45 Kerr-McGee training. Aug 77, 17 mining curriculum. Jan 77, 43 mining technology schools. Jan 77, 47 ☆ state of, mining. Jan 77, 43 ☆ putting engineers to work. Jan 77, 51 role of research. Jan 77, 45

Ego Mines Ltd.: exploration, Ontario. Feb 77, 30

Electrolytic Zinc Co.: Rosebery mill, Nov 77, 28

Emeraid Mine Corp.:

USBM test, methane gas. Jan 77, 14 Emigh, G.D.: & Phosphate Rock. Mar 77, 68 & Energy Conservation: A New Challenge for Cop-per Smelting: S.N. Sharma, W.L. Davis, Jr. à Energy Conservation in the Electrolytic Zinc Pro

cess. Nov 77, 30 Energy Development Consultants, Inc., awarded USBM contract. Jun 77, 21

Energy Fuels Nuclear, Inc.: studies Utah mill site. Dec 77, 18

Engineering Manpower Commission: salary survey, mining engineers. Jan 77, 42 th Environmental Considerations and the Modern Electrolytic Zinc Refinery. Nov 77, 31

Environmental Control: air pollution, nonferrous metals. Nov 77, 5 Asarco, EPA conter on Tacoma smelter. Jun 77,

Australian status. Jan 77, 17 Bunker Hill, EPA dispute. Sep 77, 22 coal burning, climate damage. Sep 77, 14 Cominco Ltd., improvements at Trail. Jun 77, 13 & considerations, zinc refinery. Nov 77, 31 ☆ energy conservation, electrolytic zinc process. Nov 77, 30

☆energy conservation, smelting. May 77, 38 EPA, ambient air standards. Jul 77, 17 Exxon at Crandon, Wisc. Feb 77, 28 ☆ hydrology annual review. Feb 77, 70 Idaho EIS filed. Nov 77, 10 impact, Resource Act. Nov 77, à lignite, North Dakota. Aug 77, 24 ☆ methane control, coal mines. Oct 77, 41

nuclear power plants. Apr 77, 48 reclamation dozer. Nov 77, 11 ☆ radon concentration. Dec 77, 38 

Erie Mining Co.: coal gasification project. Jul 77, 22 \* Ertsberg, The: A Case History of Mine Develop-ment: F.K. Wilson. Jun 77, 33

☆ Examination of Interest Rates and Their Effect on Valuation of Mineral Deposits, An: J.J. Dran, H.N. McCarl. Jun 77, 44

Exploration: & activity, Brazil. Dec 77, 40

Alaskan joint venture, Pb-Zn-Ag. Nov 77, 18 Bowen Basin, Australia. Jan 77, 28 Caladay property negotiations. Jun 77, 19 Camflo in Manitoba. Jan 77, 13 Çities Service terminates division. Dec 77, 19 computer system for sulfide deposits. Nov 77, 18 Cyprus, central Colorado. Nov 77, 7 DIA, Ag-Pb-Zn vein, Idaho. Jul 77, 28

☆ economics, foreign vs. domestic. Jun 77, 40 ☆ Ertsberg. Jun 77, 33 Exxon forms new company. Dec 77, 18

Fiji, Namosi copper deposit. Oct 77, 18 Fluor Corp., Indonesian copper exploration. Jul 77.30

graphite in Saskatchewan. Jan 77, 14 Idaho geothermal potential. Aug 77, 16 Mary Kathleen export permits. Jan 77, 13 Midnite Mines, uranium, Jul 77, 28 Minerals Engineering, Poison Valley uranium.

Jun 77, 18 Minnesota, zinc mineralization. Aug 77, 17 Navan, Ireland, Pb-Zn. Jan 77, 13 new iron ore prospects, Australia. Jan 77, 33 Otter Exploration N.L., uranium in Australia.

Jun 77, 21 Oxbow Tungsten Mines, Tennessee strike. Jun 77,

21 Papua-New Guinea, Star Mountain copper. Jun 77.22

potash core drilling, horizontal. Apr 77, 7 ☆ preliminary pit slope design. Apr 77, 45 Quebec exploration program awaited. Jun 77, 9 Ranger Jabiru project. Jan 77, 23 remote sensing, industry applications. Mar 77, 26 Stampede International Resources, uranium. Aug

Standard of Indiana joins Ok Tedi. Jan 77, 10 ☆ Stekenjokk mine, Sweden. Dec 77, 22
Terra Mining & Exploration, silver in N.W.T.

Aug 77, 17 tin mining feasibility, Bolivia. Aug 77, 18 United Canso Oil & Gas Ltd., gold at Goudreau.

USGS, uranium in New Mexico, Utah. Jun 77, 18 uranium activities. Feb 77, 51 uranium, Australia. Jan 77, 21 uranium speculation, Washington. May 77, 16

Utah Development Co., Norwich Park, Australia. Jan 77, 28

Western Mines Ltd., Lynx mine. Jan 77, 13 Exxon Co. USA:

coal exploration, Colombia. Feb 77, 30 environmental protection, Crandon, Wisc. Feb 77, 28 forms exploration company. Dec 77, 18

nuclear fuel storage site. Apr 77, 24 plans Crandon mine. Oct 77, 18 uranium exploration, Navajo reservation. Apr 77.24

Eyde, T.H.: ☆ Geology. Feb 77, 51 Eyde, T.H.: ☆ Zeolites. Mar 77, 79

☆ Falling Barometer Nullifies Mine Sealant Effectiveness: G.L. Schroeder. Jun 77, 39 Farrell, E.A.: 

Asbestos. Mar 77, 52

Federal Leasing: The Need for a Perspective:C.

Lee, D. Russell. May 77, 23

Federal-American Partners: intends Allied Nuclear purchase. Sep 77, 19 ☆ Feldspar: C. Rogers. Mar 77, 59

consortium to develop copper. Feb 77, 30 Namosi copper deposit. Oct 77, 18
Filtering, Filtration(see also Drying, Thickening): rat Pb-Zn mills. Nov 77, 28

☆ earth bottom thickeners. Aug 77, 36 Finch, T.E., Speake, C.J., Haley, D.R.: ☆ Calculat-

ing Dragline Reach Requirements for Western

Surface Mines. May 77, 35
Fisk, A.T., et al.: & Spiral Drill-and-Blast Concept May Speed up Tunneling Advance Rate. Jun 77. 29

Flavel, M.D.: & Scientific Methods to Design Crushing and Screening Plants. Jul 77, 65

mining laws affect phosphates. Feb 77, 15 phosphate industry. Mar 77, 69 uranium from phosphoric acid. Dec 77, 18

Flotation (see also Concentration, Reagents): ☆ lead-zinc. Nov 77, 25

Fluor Corp.: Fluor Australia, management contractor for Norwich Park mine. Jul 77, 30 Indonesian copper. Jul 77, 30

Fluorspar:

à annual review. Mar 77, 59 Frontier develops Kentucky mine. Sep 77, 25 & Fluorspar: W.K. Weisman. Mar 77, 59

Fly Ash:

annual review. Mar 77, 61 #Fly and Bottom Ash. National Ash Association. Mar 77, 61

FMC Corp.:

gold discovery Jerritt Canyon, Nev. Feb 77, 53 Freeport Minerals Co.:

uranium project at Uncle Sam plant. Feb 77, 17 Fresnillo Co.:

merges with Rosario. Apr 77, 25

☆ Friction Rock Stabilizers—A Different Approach: I.J. Scott. Jul 77, 59

Frontier Spar Corp.:

develops Kentucky fluorspar. Sep 77, 25

Furnaces:

thenergy conservation, smelting. May 77, 38

Gardinier, byproduct uranium. Dec 77, 18 General Crude Oil Co.: Alaskan joint venture, Nov 77, 18

Geochemistry: annual review. Feb 77, 57

☆ data collection for pit slope design. Apr 77, 45

Geology:

☆ Jabiluka prospect, Australia. Jan 77, 21

Geophysics (see also Exploration, Geology):

26

Geothermal Energy

potential, Snake River plain. Aug 77, 16 Getty Oil Development Co. Ltd.:

☆ Australian uranium reserves outlook. Jan 77,

Jabiluka developments. Jan 77, 20 Ghana's Consolidated Diamond Ltd.:

diamond reserves, Birim River. Feb 77, 30 Gill, J.G., Dick, R.A.: ☆ Metal and Nonmetal Blast-ing accidents During 1975-76. Nov 77, 36

Gold, Gold Ores:

Amoco Canada, mining in Ontario. Jan 77, 10 Caladay property negotiations. Jun 77, 19 DeLamar silver mine opens. Jun 77, 18 FMS discovery, Jerrit Canyon, Nev. Feb 77, 53 Klondike develops Alaskan placer. May 77, 16 precious metals from sewage sludge. May 77, 11 United Canso Oil & Gas Ltd., gold at Goudreau. Jun 77, 22

Golder Associates, Inc.: studies oil field mining. Dec 77, 19 Goldsworthy Mining Ltd.:

Marandoo project. Jan 77, 33

Government Mineral Policy:

Argentina, uranium production. Jun 77, 21 Australia allows uranium mining. Oct 77, 14 Australia, Fox Commission report. Jan 77, 16 Australian firm losses. Jul 77, 26 Australian prime minister, interview with. Jan 77.34

Carter's energy program response. Jun 77, 13 ☆ cause mineral shortages. Apr 77, 4 ☆ coal mining legislation. Mar 77, 38

Colorado severance tax. Mar 77, 28 EMARS (Energy Minerals Activity Recommenda tion System). Mar 77, 38

energy resources extraction. Jul 77, 17 farmland mining moratorium. May 77, 11 federal education aid. Jan 77, 41

☆ federal leasing. May 77, 23 federal leasing regulations. Feb 77, 14 federal strip mining bill signed. Sep 77, 9 ☆ geology annual review. Feb 77, 53

Hudson Bay sells potash. May 77, 12 Interior proposal on Mining Law. Nov 77, 5 Kennecott in Nev. Jan 77, 14 Land withdrawn, N.W.T. Jun 77, 24

natural gas regulation. Mar 77, 14 negotiations, oil shale lands. May 77, 14 Northern Great Plains coal. Jan 77, 7

nuclear power growth. Jul 77, 11 Ohio, reclaim stripped mine land. Nov 77, 18 Papua-New Guinea invites exploration. Jun 77, 22

Peruvian President Bermudez and Cuajone. Jan

potash takeover, Saskatchewan. Apr 77, 28 Quebec, Asbestos Corp. takeover. Dec 77, 20 Quebec awaites exploration program. Jun 77, 9 repeal 1872 mining law. Oct 77, 27 Reserve ruling upheld. Jan 77, 12 retroactive tax law, B.C. Oct 77, 24 role in exploration. Feb 77, 53 Saskatchewan potash takeover. Sep 77, 27 slows Saskatchewan uranium development. Mar 77, 16

☆ standards for blasting. Nov 77, 38 steel industry competition. Jul 77, 21

☆ Sweden, Stekenjokk mine. Dec 77, 22 uranium ownership, Canada. Jan 77, 13 Western Coalition of Governors. Nov 77, 5

Granby Mining Corp.: negotiates for Sam Goosely. Aug 77, 18 Grancher, R.A.: ☆ Cement. Mar 77, 56

Granges AB:

reduces iron ore production. Mar 77, 28 Great Western United Corp.: merger with Sunshine Mining. Nov 77, 18

Grinding (see also Crushing): ☆ annual review. Feb 77, 76
 ☆ designing. Jul 77, 65
 ☆ stage grinding, Mt. Isa. Nov 77, 28

Ground control:

☆ friction rock stabilizers. Jul 77, 59 ☆ roof bolting improvements. Jul 77, 51 ☆ underground mining review. Feb 77, 44

☆ yielding rockbolt. Apr 77, 53

☆ Growing Pains of Aussie's Iron Ore Industry, The: Jan 77, 31

Guccione, E.:

Australia's Slow Entry into the Nuclear Age. # Health Hazards of Not Going Nuclear, The.

Apr 77, 49 ☆ New Study Reveals What Creates Shortages. Apr 77, 41

à Zirconium and Hafnium. Mar 77, 80

Gulf Oil Corp.: oil shale, Colorado. Dec 77, 17

Gulf Research And Development Co.: underground gasification. Dec 77, 16 Gutschick, K.A.: & Lime. Mar 77, 64

annual review. Mar 77, 62 

Haley, D.R., Finch, T.E., Speake, C.J., Jr.: 

Calculating Dragline Reach Requirements for Western Surface Mines. May 77, 35

☆ Hard-Rock Mining Apprenticeship Program Laun-ched at Kennecott's Tintic Mines Division. Jun

Hauling:

☆ continuous haulage, coal. Mar 77, 41

☆ surface mining review. Feb 77, 39 underground mining review. Feb 77, 44

Haworth, G.R., Aimone, J.T.: & How Major New Mines will be Financed in the Future. Sep 77, 30

Health(see also Environmental Control, Safety): AMC defends diesel equipment. Dec 77, 9 or annual review, coal industry. Mar 77, 46 award to Cities Service Copperhill operation. Aug

☆ radon concentration. Dec 77, 38
MESA, ground check monitors required. May 77,

☆ nuclear power plant. Apr 77, 48 USBM test to extract methane. Jan 77, 14 & Health and Safety: R.V. Ramani. Mar 77, 46 ☆ Health Hazards of Not Going Nuclear, The: E.

Guccione. Apr 77, 49

Heavy Media Separation (see also Concentration):

☆ practice, Young mill. Nov 77, 25

Heela Mining Co.:

Lakeshore shutdown. Dec 77, 18 suspends Lakeshore operation. Oct 77, 22

Homestake Mining Co.:

 Bulldog Mountain mill. Nov 77, 26 steps up uranium sales. Mar 77, 26

Houston Oil and Minerals Co.:

Richest Coal Region. Jan 77, 28

Li. Jan 77, 39

☆ How Mining Firms View Engineering Contractors: S.K. Okun, B.L. Lakin. Sep 77, 36

A How to Design and Construct Earth Bottom Thick-eners: E.S. Hsia, F.W. Reinmiller. Aug 77, 36 A How to Plan for Methane Control in Underground

Coal Mines: P.C. Thakur, J.G. Davis. Oct 77, 41 Hsia, E.S., Reinmiller, F.W.: & How to Design and Construct Earth Bottom Thickeners. Aug 77, 36

Hudson Bay Mining and Smelting Ltd.: potash assets sold to Potash Corp. May 77, 12

Stall Lake mill. Sep 77, 28

Hydraulic Mining: Consol system, Loveridge mine. Jul 77, 14 Hydrology (includes Ground Water; see also Envir-

onmental Control, Geological Engineering, Mine Water Control, Water): ☆ annual review. Feb 77, 68

☆ pit slope design, data for. Apr 77, 45 

Argentina ups uranium production. Jun 77, 21 Cyprus copper process. Nov 77, 7 Davy Powergas Ltd., Espindeza zinc process. Jul

Kennecott receives patent. Aug 77, 16 sewage sludge, precious metals from. May 77, 11 solvent exchange, Cyprus Bagdad. Sep 77, 38 ☆ technologies in solution mining. Dec 77, 30

Idaho:

mineral production decreases. Apr 77, 14 phosphate mining impact. Nov 77, 10

Idarado Mining Co.: reduced workforce. Dec 77, 19

Imco Services: supplies barite to Iran. Aug 77, 18

Creighton mine ventilation shaft. Feb 77, 26 Inco Metals Co.: markets primary metal. May 77, 18

P.T. International Nickel: Soroako project on-stream. Jul 77, 9

Industrial Minerals:

 annual review. Mar 77, 52 Conzinc Riotinto to assess mineral sands. Jun 77,

Hudson Bay sells potash assets. May 77, 12 Imco Services to supply barite to Iran. Aug 77, 18 Potash Corp. to expand Cory. Jul 77, 30 rutile, zircon mine closure losses. Jul 77, 26 Texasgulf closes Fannet. May 77, 18

Inland Steel Co.: coal deposit, Marshall, Ill. Feb 77, 28 Sherwood mine closure. Jul 77, 22

Instruments, Instrumentation

à x-ray analyzers, Pb-Zn mills. Nov 77, 26 density controls. Nov 77, 27

riggrinding circuit controls. Nov 77, 26 ☆ level detectors. Nov 77, 27

☆ Interfacing Technologies in Solution Mining: M.E. Wadsworth. Dec 77, 30

International Minerals & Chemical Corp.: Jan 77, 34

Sar Chesmeh contracts awarded. Dec 77, 20 Iron, Iron Ores:

Australian growth plans. Jan 77, 31 ☆ Brazil's future. Dec 77, 40 Cascade formation studies. Jan 77, 12 CRVD-Kawasaki joint venture. Apr 77, 28 direct reduction developments. Feb 77, 82 direct reduction (Midrex process). Feb 77, 14 Erie, coal gasification for pelletizing fuel. Jul 77,

Inland Steel to close Sherwood mine. Jul 77, 22 Kaiser's Eagle Mountain mine. Oct 77, 13 MIM Holdings to acquire interest in Mt. Golds-worthy mine. Aug 77, 17 on-site gasification for pelletizing fuel. May 77, 9 ore cars for Minntac mine. Aug 77, 17 pellet producers in energy crunch. Feb 77, 13 price increase, Mt. Newman. Oct 77, 24

Jackling Lecture, 1977:

à The Ertsberg: A Case History of Mine Develop ment: F.K. Wilson. Jun 77, 33 Jacoby, C., Lefond, S.J.: 

Salt. Mar 77, 70

bauxite agreement with Kaiser. Apr 77, 21

**Iamaica Bauxite Institute:** 

reports 1977 production figures. Oct 77, 24 Jamison, W.B.: & Improvements in Roof Bolting Promise Greater Safety and Productivity. Jul 77, 51

☆ Australian iron ore exports. Jan 77, 31 ☆ Australian uranium exports. Jan 77, 19 Jones, R.L.: ☆ Cyprus Bagdad's Solvent Exchange Process. Sep 77, 38

Kaiser Bauxite Co.:

mining agreement, Jamaica. Apr 77, 21

Kaiser Industries:

sells Kaiser Engineers. Apr 77, 28

Kaiser Steel Corp.:

coal sales contract. Dec 77, 19 Eagle Mountain iron mine. Oct 77, 13

Kaolin:

☆ annual review. Mar 77, 62 ☆ Kaolin: H.H. Murray. Mar 77, 62 Kay, K.R.: & Concentration, Feb 77, 78

Kennecott Copper Corp.:

asks air quality deadline extension. Apr 77, 18 
 ⇒ bulk grease handling, Bingham mine. Sep 77, 33

 ⇒ delayed blasting at Ruth pit. Apr 77, 37
 diversifies with Peabody capital. Sep 77, 24 expansion program. Jul 77, 28 molybdenum recovery process patent. Aug 77, 16

Nevada Mines to resume. Jan 77, 14

† Kennecott's Delayed Blasting Technique Cuts
Costs, Improves Pit Stability: R.R. Dimock, G. D. Clayton. Apr 77, 37

Kentucky:

☆ Mapeo Martiki mine. Oct 77, 46

Kerr-McGee Corp.:

EIS, East Gillette mine. Jul 77, 11 opens new uranium mine. Sep 77, 25 Red Mountain copper prospect. Apr 77, 25 Rio Puerco mine started. Apr 77, 24 uranium miner training school. Aug 77, 17

77,82

Kloeckner & Co.:

chrome ore, Brazil. Jan 77, 12

Knife River Coal Mining Co.: ☆ lignite, North Dakota. Aug 77, 24 Kostka, J.G.: & Structural Mineral Aggregates. Mar

Krupp Industrie und Stahlbau:

wins Sar Chesmeh contract. Dec 77, 20 Kujawa, R.J.: & Vermiculite. Mar 77, 79 Kyanite:

annual review. Mar 77, 64

& Kyanite: D. Radcliffe. Mar 77, 64

Lakeshore operations suspended. Dec 77, 18
Lakin, B.L., Okun, S.K.: ☆ How Mining Firms View Engineering Contractors. Sep 77, 36

cost, air pollution control. Nov 77, 5 

Latin America:

☆ bauxite mining. Mar 77, 54 Leaching (see also Cyanidation, Hydrometallurgical Processing): dat Cyprus Bagdad. Sep 77, 38

Cyprus Mines copper process. Oct 77, 20 technologies in solution mining. Dec 77, 30

TL demonstration plant. Sep 77, 22

Lead, Lead Ores:

rat Mt. Isa. Nov 77, 24 Cominco, smelter, environmental control im-provements. Jun 77, 13 DIA finds Ag-Pb-Zn vein. Jul 77, 28

discovery, Kotzebue, Alaska. Nov 77, 18 Houston Oil & Minerals Corp., Creede option. Aug 77, 17

Inco Ltd. forms marketing company. May 77, 18 Ireland, Navan mine start-up. Aug 77, 18 ☆ Madrigal mine. Peru. Nov 77, 22 ☆ market outlook. Nov 77, 33 ☆ recovery, Brushy Creek plant. Nov 77, 26

☆ recovery, Bulldog Mountain mill. Nov 77, 26 ☆ recovery, Park City concentrator. Nov 77, 26
☆ recovery, Rosebery mill. Nov 77, 28 Sabina Industries prospect, Ireland. Jan 77, 13 ☆SME meeting, Lead-Zinc Update. Nov 77, 20

☆ trackless mining, Kamioka. Nov 77, 23
Lee, C., Russell, D.: ☆ Federal Leasing: The Need for a Perspective. May 77, 23

Lefond, S.J.: 

Natural Abrasives. Mar 77, 68
Lefond, S.J., Jacoby, C.: 

Salt. Mar 77, 70

Legislation (see also Governmental Mineral Policy): BLM claim recording regulations. Apr 77, 17 Carter's energy proposals, response to. Jun 77, 13 farmland mining moratorium. May 77, 11 
☆ federal leasing. May 77, 23 federal strip mining bill hearings end. Apr 77, 34 magnetohydrodynamics research. Dec 77, 34 Quebec Bill 27 awaited. Jun 77, 9

steel marketing policy. Jul 77, 21 Li, T.M.:

☆ How Mining Engineers will Fare in 1977. Jan

☆ Mechanized Mining Assures Future Productivity at Stekenjokk Copper-Zinc Project. Dec 77,

à Lignite and North Dakota: A Cautious Response to Accelerated Mining Demands: J.D. Wiebmer. Aug 77, 24

Lime, Limestone:

☆ annual review. Mar 77, 64 thiosorbic, Dravo Corp. Apr 77, 56 à Lime: K.A. Gutschick. Mar 77, 64

Lithium:

☆ annual review. Mar 77, 66 Lithium: J.H. Alexander. Mar 77, 66 Little, Inc., Arthur D.:

study on nuclear growth. Jul 77, 11

Loading: ☆ Asarco Tennessee mines. Nov 77, 21

rat Goonyella mine. Jan 77, 29 at Mary Kathleen mine. Jan 77, 25 bulk carrier load record. Jun 77, 9

ore cars for Minntac mine. Aug 77, 17 Pullman-Torkelson, train facility contract. Jun

☆ surface mining review. Feb 77, 40 train-loading facilities, Cordero mine. Aug 77, 11 Long, B.G.: & Putting New Engineers to Work—A

Management Perspective. Jan 77, 50 Longwall Mining (see also Mining Methods, Under-

à Look at the US Bureau of Mines' Minerals Availability System, A. Sep 77, 43 Lynx-Canada Exploration Ltd.:

claim to Montcalm property. Feb 77, 30

Magnesium, Magnesium Compou

à annual review. Mar 77, 67 ☆ Magnesium Compounds: J.L. Cunningham. Mar Maintenance:

☆ bulk grease, Bingham mine. Sep 77, 33

(see also Automation, Economics, Operations Research):

☆ interest rates, valuation of mineral deposits. Jun 77, 44

☆ at Australian iron mines. Jan 77, 31 EJC salary survey. Jan 77, 42

☆financing major new mines. Sep 77, 30 merger between Sunshine, GWU Corp. Nov 77, 18 pollution controls, nonferrous industries. Nov 77, 5 

☆ weighted average cost of capital. May 77, 42 Manganese, Manganese Ores: Middleplats mine, Anglo American. Apr 77, 28 undersea deposit found. Apr 77, 28

Mannion, L.E., Parratt, R.L.: Soda Ash. Mar 77, 71

☆ Apprenticeship Program, Kennecott, Jun 77, 37 starting salaries, mining engineers. Jan 77, 39

Law of the Sea conference. Sep 77, 9 Offshore Technology Conference. Apr 77, 22

☆ Mapco's Martiki Mine Looks for Full Production in 1977. Oct 77, 46

Marketing:

Amax Nickel Inc. buys Agnew Production. Aug 77.15

☆ Australia prediction of demand. Jan 77, 19 Australian coal exports. Jan 77, 26 coal fragmentation process. Jul 77, 28 Commerce mission to Turkey, Greece. Feb 77, 24 ERDA study, future uranium prices. Jan 77, 10 ☆ financing major new mines. Sep 77, 30 Imco Services to supply barite to Iran. Aug 77, 18 Inco Ltd. forms new company. May 77, 18 ☆ lead perspectives. Nov 77, 34 steel policy, competition in. Jul 77, 21 uranium, US survey. Dec 77, 17

☆ zinc perspectives. Nov 77, 33
Mary Kathleen Uranium Ltd.: additional financing, Queensland mine. Nov 77,

☆ Australian reserves outlook. Jan 77, 17 1976 mine production. Mar 77, 30

Materials Handling Systems (see also Conveying, Pipelines, Railway Systems, Transportation): ☆ at Hay Point, Australia. Jan 77, 30

coal facilities. Jun 77, 16 coal storage silos, Jacobs Ranch mine. May 77, 11 Consol hydraulic mining system, Loveridge mine. Jul 77, 14

conveyor haulage, Sierrita Duval. Nov 77, 7 new carrier for Oglebay. Feb 77, 28

Pullman Torkelson, train loading facility. Jun 77, Matoney, J.P.: & Coal Utilization. Mar 77, 43

McCarl, H.N., Dran, J.J.: An Examination of Interest Rates and Their Effect on Valuation of Mineral Deposits. Jun 77, 44

McKee & Co., Arthur G.:

on-site gasification for pelletizing fuel. May 77, 9 McManus, J.: 

Crushing and Grinding. Feb 77, 76 ☆ Mechanization-key to Improved Productivity. Nov 77, 20

à Mechanized Mining Assures Future Productivity at Stekenjokk Copper-Zinc Project: T.M. Li. Dec 77, 22

Melcher, J.: 

MHD: Tomorrow's Coal Technology.

Metallgesellschaft Canada Ltd.:

Dec 77, 34

Michell, W.D.: 

Bauxite and Alumina. Mar 77, 54 Midnite Mines, Inc.: uranium exploration, Indian lands. Jul 77, 28

MIM Holdings Ltd.: acquires Mt. Goldsworth interest. Aug 77, 17 copper discovery, Papua-New Guinea. Sep 77, 26 1976 progress report. Apr 77, 28

Mine Design (see also Management, Surface Mining, Underground Mining):

a calculating dragline reach. May 77, 35 Consol hydraulic mining system, Loveridge mine. Inl 77, 14

Denison Mines ventilation program. Aug 77, 18

☆ Ertsberg, Jun 77, 33 feasibility of mining depleted oil reserves. Jun 77, 21 ☆ friction rock stabilizers. Jul 77, 59

☆ methane control, planning. Oct 77, 41 ☆ pit slope design, data for. Apr 77, 45 Sunedco dedicates Cordero mine. Aug 77, 9 Minera Aguilar Mining Co.:

reserves, San Juan, Argentina. Feb 77, 30

Mineral Processing. See individual unit processes.

Minerals Engineering Co.: increased uranium reserves. Jun 77, 18 Minerals, Mining & Metallurgy Ltd.:

☆ retreating tailings. Nov 77, 29

☆ Mining Education—The State of the Discipline: T.J. O'Neil. Jan 77, 43

Mining Engineering Salaries Show Healthy In-creases During 1974-76. Jan 77, 42

Mining Equipment (see also specific types):

☆ at Marandoo, Australia, Goldsworthy. Jan 77, 33 diesel safety, coal mines. Dec 77, 9

☆ friction rock stabilizers. Jul 77, 59 ☆ Jabiluka mine plan. Jan 77, 22 ☆ lignite, North Dakota. Aug 77, 24 ☆ lubrication, bulk grease. Sep 77, 33 MESA, ground check monitors required. May 77,

ore cars for Minntac mine. Aug 77, 17 roof bolting improvements. Jul 77, 51
 spiral drill-and-blast concept. Jun 77, 29 standardize mine communications equipment, 

Sunedco dedicates Cordero mine. Aug 77, 9 ☆ surface mining review. Feb 77, 37 thick seams, underground coal. Oct 77, 35 ☆ truck dispatching, Cyprus Pima. Aug 77, 40 world's largest dozer. Nov 77, 11

Mining Methods (see also individual methods, Surface Mining, Underground Mining): ☆ Asarco Tennessee mines. Nov 77, 21 rat Mary Kathleen mine. Jan 77, 25 ☆ calculating dragline reach. May 77, 35 ☆ coal recovery, strip, auger. Oct 77, 48 mining depleted oil reserves, feasibility. Jun 77, 21 ☆ Elmwood mine. Nov 77, 20 farmland mining moratorium. May 77, 11 ☆ lignite, North Dakota, Aug 77, 24 ☆ Madrigal mine, Peru. Nov 77, 22 novel underground coal recovery. Mar 77, 51 ☆ Ranger Jabiru project. Jan 77, 23 ☆ research, surface coal mining. Mar 77, 36
☆ shortwall mining, coal. Mar 77, 41 ☆ spiral drill-and-blast concept. Jun 77, 29 ☆ Stekenjokk, cut-and-fill, room-and-pillar. Dec

thermal mining oil sands, USSR. Feb 77, 24 ☆thick seams, underground coal. Oct 77, 35 USBM study, oil field mining. Dec 77, 19

Minnesota: natural gas shortage in iron range. Feb 77, 13 Missouri:

à Brushy Creek mill. Nov 77, 26 Mitsui Mining & Smelting Co.:

abandons bauxite project. Sep 77, 26 ☆ trackless mining at Kamioka. Nov 77, 23
Molybdenum, Molybdenum Ores:

Amax Exploration, Colorado molybdenum properties. Aug 77, 16

Amax in Mt. Emmons. Nov 77, 18 drilling at Crested Butte, Colo. Dec 77, 18 Molycorp, Inc.

s subsidiary of Union Oil Co. Jun 77, 19 Montana:

☆ magnetohydrodynamics research. Dec 77, 34 77.85

Mt. Isa Mines Ltd.: ☆ lead-zine mining at Mt. Isa. Nov 77, 24 markets Agnew nickel. Sep 77, 27

new instrumentation, Nov 77, 25 ☆ stage grinding. Nov 77, 28 to build tallest stack in Australia. May 77, 18

Mueller, E.R.: 

Simplified Dispatching Board Boosts Truck Productivity at Cyprus Pima. Aug 77, 40

Murray, H.H.: A Kaolin. Mar 77, 62 Murray, R.E.: & Underground Mining, Mar 77, 38

National Aeronautics and Space Administration:

asteroid mining considered. Oct 77, 22 National Ash Association: & Fly and Bottom Ash. Mar 77, 61

National Coal Association:

miner training program. Jan 77, 14 revises 1977 forecasts. Sep 77, 18 ☆ National Commission on Supplies and Shortages studies mineral markets. Apr 77, 41

National Photographic Laboratories: to develop training materials. Jan 77, 14 National Science Foundation:

Northern Great Plains regulatory study. Jan 77, 7 & Natural Abrasices. S.J. Lefond. Mar 77, 68 Nevada:

delayed blasting, Kennecott Ruth pit. Apr 77, 37 miners fight BLM regulations. Mar 77, 13 Victoria mine shut down. Sep 77, 19

Nevada Power Co.: buys coal from UV Industries. Feb 77, 28 

to develop Thai zinc refinery. Feb 77, 30 New Joburke Explorations:

uranium project, Saskatchewan. Oct 77, 24 New Markets and the Environment: Challenges Facing the Lead-Zinc Industry, Nov 77, 20 New Mexico:

Kaiser sells York Canvon coal. Dec 77, 19 New Mexico and Arizona Land Co.: uranium reserves announced. Aug 77, 16

New Products Corp.: acquires uranium options. Oct 77, 22 acquires silver claims. Sep 77, 24

yon Switches to Bulk Grease Handling. Sep 77. 33

Newmont Mining Corp.: Cuajone to reach full production. Jan 77, 8 

ary Data Collection for Pit Slope Design. Apr 45

Nickel, Nickel Ores: Amax Nickel purchases Agnew output. Aug 77, 15 ☆ hydrometallurgy review. Feb 77, 81 Lynx-Canada cites Montcalm claim. Feb 77, 30 Inco Soroako project underway. Jul 77, 9 Standard Oil of Indiana negotiates Indonesian nickel. Jun 77, 22

Sulawesi complex, Indonesia. Apr 77, 28 Noranda Australia Ltd.: 

☆ Koongarra prospect. Jan 77, 24 enters copper toll pact. Mar 77, 28

Nord Resources Corp.: forms Australian subsidiary. Jul 77, 30 North American Coal Corp.: coal mines flooded. Sep 77, 24

☆ lignite, North Dakota. Aug 77, 24 Northair Mines Ltd.:

new mine in British Columbia. Aug 77, 17 North Broken Hill Ltd.: ☆ retreating tailings. Nov 77, 29

North Dakota: ☆ lignite, North Dakota. Aug 77, 24

Northern Energy Resources Co.: asks for mine permit. Sep 77, 24

Northern Great Plains regulatory recommenda-tions. Jan 77, 7

☆ Notes on Hydraulic Drilling, Dec 77, 28

Nuclear Energy: ☆ Beckmann interview, safety. Apr 77, 48 Carter's energy proposals, response. Jun 77, 13 generation to grow. Jul 77, 11

O'Neil, T.J.: & Mining Education-The State of the Discipline. Jan 77, 42 Occidental Minerals Corp.:

copper deposit in Miami, Ariz. Nov 77, 13 Oglebay Norton Co.:

carrier contracted. Feb 77, 28

reclaiming mined land. Nov 77, 18 Oil Shale:

commercial development, future. Dec 77, 17 process produces byproducts. May 77, 14 Tosco awarded contract. Aug 77, 16

Oilmin NL: Okun, S.K., Lakin, B.L.: & How Mining Firms View Engineering Contractors. Sep 77, 36

Olson, J.J. et al.: & Spiral Drill-and-Blast Concept May Speed Up Tunneling Advance Rate. Jun 77, 29

Open Pit Mining. See Surface Mining. Ortloff Minerals Services Corp.: to design mill, Colorado. Feb 77, 28 Outokumpu Oy: mining agreement, Rumania. Dec 77, 20

Pacific Power & Light: forms Nerco. Feb 77, 30 Pancontinental Mining Ltd.: ☆ Australian uranium reserves outlook. Jan 77, 17 ☆ Jabiluka developments. Jan 77, 20

Papua-New Guina: Amoco joins Ok Tedi. Jan 77, 10 

Dec 77, 40 

Pechiney Ugine Kuhlman Corp.: withdraws from zirconium venture. Mar 77, 28 Pelletizing (see also Agglomeration, Pyrolysis) Allis-Chalmers grate-kiln system. Feb 77, 13 Perlite:

☆ annual review. Mar 77, 68 ☆ Perlite. R.S. Milanese. Mar 77, 68 Peru:

Cuajone mine to reach full capacity. Jan 77, Peters, J.W.: & Underground Mining. Feb 77, 42 Peterson, C.R. et al.: & Spiral Drill-and-Blast Con-cept May Speed Up Tunneling Advance Rate. Jun 77, 29

Petroleum, Petroleum Products: Carter's energy proposals, response. Jun 77, 13 energy resource extraction. Jul 77, 18 government regulation gas prices. Mar 77, 14 mining depleted oil reserves. Jun 77, 21 natural gas shortage, Minnesota. Feb 77, 13 oil field mining. Dec 77, 19

Phelps Dodge Corp.: Cuajone to reach full production. Jan 77, 8 world copper resources adequate. Aug 77, 12

Phillipines: Acoje plans expansion. Sep 77, 20 Phosphates: ☆ annual review. Mar 77, 68

☆ federal leasing. May 77, 23 

Pioneer Nuclear, Inc.: expands uranium mill. Sep 77, 13

Pioneer Uravan, Inc.: plans uranium/vanadium mill. Aug 77, 16 Pipelines

reoal slurry. Oct 77, 49 Consol, hydraulic mining system, Loveridge mine. Jul 77, 14

Pittston Co.: settles Buffalo Creek lawsuit. Mar 77, 28

Placer Mining develop Alaskan placers. May 77, 15 Plant Design:

☆ annual review. Feb 77, 85 coal handling facilities. Jun 77, 16 ☆ energy conservation, smelting. May 77, 38 Espindeza process for zinc. Jul 77, 30 Holmes & Narver awarded contract. May 77, 18 on-site gasification for pelletizing fuel. May 77, 9 Soroako nickel project underway. Jul 77, 9 SX-EW plant at Cananea. Aug 77, 18 Plastics Universal Corp.: to supply coal to Duke Power. Aug 77, 16

Potash:

Duvall mine, Saskatchewan, valuated. Feb 77, 30 ☆ federal leasing. May 77, 23 Potash Corp.:

purchases Saskatchewan mine. Sep 77, 27 to expand Cory. Jul 77, 30 Power, Power Generation:

Carter's energy proposals, response. Jun 77, 13 ⇔ coal utilization. Mar 77, 43
 electricity from gasified coal. Dec 77, 9 low-rank coal utilization. Jul 77, 24 ☆ magnetohydrodynamics. Dec 77, 34 National Energy Act. Oct 77, 18 nuclear power to grow. Jul 77, 11 ☆ nuclear safety. Apr 77, 48 Power, W.R.: & Dimension Stone, Mar 77, 58

Pretiminary Data Collection for Pit Slope Design: R.D. Call, J.P. Savely, D.E. Nicholas. Apr 77, 45 P.T. International Nickel Indonesia:

develops Sulawesi complex. Apr 77, 28 Pullman Torkelson Co.:

to build train-loading facility. Jun 77, 18

Precipitation (see also Hydrometallurgical Process-

☆ uranium at Mary Kathleen mine, Jan 77, 25 ☆ Putting New Engineers to Work—A Management Perspective: B.G. Long, Jan 77, 50

Queensland Mines Ltd.: Nabarlek Project. Jan 77, 24

Quintana Mineral Corp.:
postpones Copper Flat project. Oct 77, 22

Radcliffe, D.: 

Kyanite. Mar 77, 64

Railway Systems (see also Materials Handling Systems, Transportation): ☆ coal haulage. Oct 77, 49 ore cars for Minntac mine. Aug 77, 17 Ramani, R.V.: & Health and Safety. Mar 77, 46 Ramani, R.V., Bise, C., Stefanko, R.: & Under-ground Extraction Techniques for Thick Coal

Seams. Oct 77, 35 Ranchers Exploration & Development Corp.: Hope mine output to United Nuclear. Jun 77, 19 steps up uranium sales. Mar 77, 26 Rand Corp., Northern Great Plains study. Jan 77, 7

Ranger Uranium Mines Pty. Ltd.: 

Raymond International: buys Kaiser Engineers. Apr 77, 28 

☆ Bluehill concentrator. Nov 77, 25 & Brushy Creek plant. Nov 77, 26 ☆ Leadville mill. Nov 77, 26 ☆ Park City mill. Nov 77, 26

☆ trends in usage in PB-ZN. Nov 77, 27 ₩ Woodlawn operation. Nov 77, 29
 ★ Young mill. Nov 77, 26

Reclamation. See Environmental Control.

Reduction (see also Refining, Smelting): Agnew nickel smelted at Port Nickel. Aug 77, 15 Asarco, EPA confer, Tacoma smelter. Jun 77, 14

Republic Steel Corp.: Cascade iron studies. Jan 77, 12

Research:

finding untapped mineral deposits. Jul 77, 22 gasification for pelletizing fuel. May 77, 9 Kennecott patent, molybdenum recovery process Aug 77, 16

low-rank coal utilization. Jul 77, 24 ☆ magnetohydrodynamics. Dec 77, 34 mine ventilation, USBM. Oct 77, 11 mining depleted oil reserves. Jun 77, 21 precious metal from sewage sludge. May 77, 11 ☆ yielding rockbolt. Apr 77, 53

Research and Development, Coal: E.B. Wilson Mar 77, 47

Reserve Mining Co.: court ruling upheld. Jan 77, 12

Reserves (see also Economics, Governmental Min-eral Policy, specific commodities): at Marandoo, Australia. Jan 77, 33 Australian coal. Jan 77, 26 Australian uranium. Jan 77, 16 coal, A.T. Massey subsidiary. Jun 77, 18 copper, San Juan, Argentina. Feb 77, 30

ERDA, high-cost US uranium. Aug 77, 15 ERDA, uranium ore. Jul 77, 13 EPRI, US uranium. Jun 77, 19 Mary Kathleen mine. Jan 77, 24 ☆ Mineral Availability System, USBM. Sep 77, 43 mining of depleted oil. Jun 77, 21

Nerco, Montana. Feb 77, 30

Northern Great Plains coal. Jan 77, 7 Sam Goosely Ag-Cu-Au deposit. Aug 77, 18 ± US self-sufficiency, dependence. Apr 77, 42 uranium. New Mexico & Arizona Land Co. Aug

world copper through 1990, Aug 77, 12 Retorting:

Superior Oil process, byproducts. May 77, 14 Revnolds Metals Co.:

new alumina refinery, Australia, Feb 77, 28 Rio Algom Ltd.:

reactivates Panel mine, Ontario. Jan 77, 13 

Rock Mechanics (see also Ground Control, Hydrologv): à annual review. Feb 77, 73

R.C. Bates. Dec 77, 38

Roe, L.A.: *☆ Talc*. Mar 77, 76 Rogers, C.: *☆ Feldspar*. Mar 77, 59 Role of Weighted Average Cost of Capital in Evaluating a Mining Venture, The: E. Sani. May 77, 42

Room-and-Pillar (see also Mining Methods, Underground Mining):

☆ for coal. Mar 77, 41 ☆ Stekenjokk mine. Dec 77, 23

Rosario Resources Corp.: merges with Fresnillo Co. Apr 77, 25 taxes on Pueblo Viejo. Feb 77, 26 Ross-Brown, D.: ☆ Rock Mechanics. Feb 77, 73 RSC Technology Ltd.:

mining oil sands, USSR method. Feb 77, 24

mining agreement, Outokumpu. Dec 77, 20 Russell, D., Lee, C.: ☆ Federal Leasing: The Need for a Perspective. May 77, 23

Safety (see also Environmental Control, Health): AMC defends diesel equipment. Dec 77, 9

☆ annual review, coal. Mar 77, 46 apprenticeship program, Kennecott. Jun 77, 37 BCR studies mine illumination. Sep 77, 24 explosion, French uranium mine. Jan 77, 12 ☆ falling barometer affects mine sealant. Jun 77, ☆ friction rock stabilizers. Jul 77, 59 hydraulic mining system. Jul 77, 14 MESA, ground check monitors required. May 77, MESA penalty assessments. Sep 77, 14

☆ methane control, coal mines. Oct 77, 41 ☆ mine blasting accidents in 75-76. Nov 77, 36 NCA-BCOA training program. Jan 77, 14 1976 mine fatalities. Mar 77, 28 nuclear power. Apr 77, 48 ☆ roof bolting improvements. Jul 77, 51 ☆ underground coal mines. Mar 77, 40, 41 ☆ underground mining review. Feb 77, 44

St. Joe Minerals Co.:

☆ Balmat concentrator. Nov 77, 25
☆ Brushy Creek plant. Nov 77, 26

77.42

Saperstein, L.W.: 

Surface Mining. Mar 77, 33 Saskatchewan Mining Corp.: graphite mine. Jan 77, 14

Savely, J.P., Call, R.D., Nicholas, D.E.: & Preliminary Data Collection for Pit Slope Design. Apr 77. 45

Scholz, E.A., Spat, A.G.: & The Economics of Foreign vs. Domestic Mineral Exploration. Jun 77,

Schreiber, E.J., Parks, F.N.: & What's Ahead in Minerals and Metals Development in Brazil. Dec 77, 40

Schroeder, G.L.: & Falling Barometer Nullifies Mine Sealant Effectiveness. Jun 77, 39

Scott, J.J.: & Friction Rock Stabilizers—A Different Approach to Ground Support. Jul 77, 59

☆ Seven New US Lead-Zinc Mills Since 1970. Nov

Shafts, Shaft Sinking (see also Mining Methods, Underground Mining): Creighton mine ventilation. Feb 77, 26

☆ underground mining review. Feb 77, 42
Sharma, S.N., Davis, W.L., Jr.: 
☆ Energy Conserva-

tion: A New Challenge for Copper Smelting. May 77, 38

Shock, D.A.: 

Solution Mining. Feb 77, 46 Shovels, Shoveling (see also Loading, Mining Equipment, Mining Methods, Surface Mining): ☆ stripping, Martiki mine. Oct 77, 46

☆ Simplified Dispatching Board Boosts Truck Pro-ductivity at Cyprus Pima: E.R. Mueller. Aug 77

Silver, Silver Ores:

Caladay exploration negotiations. Jun 77, 19 Creede properties optioned. Aug 77, 17 Delamar mine on-stream. Jun 77, 18 discovery in Kotzebue, Alaska. Nov 77, 18 exploration method, tried, Coeur d'Alene's. Jul 77, 22

Northair recovers Au-Ag, British Columbia. Aug 77, 17

optimistic market outlook. Feb 77, 23 precious metals from sewage sludge. May 77, 11 Pueblo Viejo taxes. Feb 77, 26 ☆ recovery, Bulldog Mountain mill. Nov 77, 26 Sam Goosely deposit negotiations. Aug 77, 18 Silver King acquires Nevada property. Oct 77, 16 Sunshine mine strike losses. May 77, 16

Silver King Mines: acquires Nevada property. Oct 77, 16 Slope Stability (see also Ground Control, Rock Mech-

delayed blasting improves pit. Apr 77, 37

pit, design data for. Apr 77, 45 surface mining review. Feb 77, 39

Smelting, Smelters (see also Reduction, Refining): Asarco, EPA confer on Tacoma. Jun 77, 14 Cominco, improvements at Trail. Jun 77, 13 

Kennecott pollution control. Apr 77, 18 Soda Ash: review. Mar 77, 71 annual review.

\$Soda Ash: L.E. Mannion, R.L. Parratt. Mar 77, 71 ☆ federal leasing. May 77, 23

Solution Mining (see also Hydrometallurgical Processing, Leaching): ☆ annual review. Feb 77, 46 ☆ interfacing technologies in. Dec 77, 30

Solvent Extraction (see also Hydrometallurgical Processing): Duval designs SX-EW plant. Apr 77, 24 Espindeza zinc process. Jul 77, 30 ☆ process at Cyprus Bagdad. Sep 77, 38

SX plant at Cananea. Aug 77, 18 uranium from phosphates. Dec 77, 18 Somasundaran, P.: ☆ Mineral Processing Fundamentals. Feb 77, 87

South Africa: rescue squad test drilling rig. Nov 77, 8 South Dakota:

uranium discovery. Mar 77, 28 Southern Peru Copper Corp.: Cuajone to reach full production. Jan 77, 8

Mexican mining development. Jan 77, 13 

Speake, C.J., Finch, T.E., Haley, D.R.: & Calculating Dragline Reach Requirements for Western Surface Mines. May 77, 35

à Spiral Drill-and-Blast Concept May Speed Up Tunneling Advance Rate: C.R. Peterson et al. Jun 77, 29

SRI International: computer system for geologists. Nov 77, 18

Standard Oil Co. of Indiana Indonesian nickel project. Jun 77, 22 oil shale, Colorado. Dec 77, 17 Steel Industry (see also Iron, Iron Ores):

marketing, "fair competition" asked. Jul 77, 21 Stefanko, R., Bise, C., Ramani, R.: & Underground Extraction Techniques for Thick Coal Seams. Oct 77, 35

Stevens, R.M.: & Barite. Mar 77, 53

Storage and Reclamation (see also Environmental Control, Materials Handling Systems): ☆ fine ore at Pb-Zn mills. Nov 77, 27 ☆ Structural Mineral Aggregates: J.G. Kostka. Mar

Sulfur:

Sun Energy Development Co. (Sunedco): dedicates Cordero mine. Aug 77, 9 reclamation research profits from ranch. Aug 77,

Sunshine Mining Co.:

merger with GWU Corp. Nov 77, 18 strike. Apr 77, 14

Superior Oil Co.:

byproducts, oil shale process. May 77, 14 Surface Mining (includes Open Pit Mining, Quarrying, Strip Mining; see also Mining Equipment. Mining Methods):

annual review. Feb 77, 37 Blackwater mine. Jan 77, 28

☆ bulk grease handling. Sep 77, 33 ☆ calculating dragline reach. May 77, 35 Carter signs strip bill. Sep 77, 9

coal, Martiki mine. Oct 77, 46 ☆ coal annual review. Mar 77, 33 ☆ coal recovery, strip, auger. Oct 77, 48 Colville Confederated Tribes consider mine. Jun 77.19

Cuajone to reach full production. Jan 77, 8 DeLamar mine on-stream. Jun 77, 18 ☆ delayed blasting for pit stability. Apr 77, 37 a Ertsberg. Jun 77, 33

farmland mining moratorium. May 77, 11 ☆ federal leasing. May 77, 23 Fluor Australia contract for Norwich Park. Jul 77

30 Golder Associates, Catavi, Bolivia, project. Aug

77, 18 ☆ Goonyella mine. Jan 77, 29 largest dozer. Nov 77, 11

☆lignite, North Dakota. Aug 77, 24 ri pit slope design, data for. Apr 77, 45 proposed MESA standards. Mar 77, 14 ☆ research, coal recovery. Mar 77, 36

Soroako nickel project on-stream. Jul 77, 9 ☆ Stekenjokk mine, Sweden. Dec 77, 22 Sunedco dedicates Cordero. Aug 77, 9

☆ truck dispatching, Cyprus Pima. Aug 77, 40 Sweden: ☆ Stekenjokk mine. Dec 77, 22

Tailings (see also Environmental Control, Geological Engineering, Hydrology, Waste Disposal and Use, Water):

rat Young mill. Nov 77, 26 ☆ retreatment, Australia. Nov 77, 29

Teck Corp.:

Afton mine start-up. Mar 77, 30

☆ Asarco Tennessee mines. Nov 77, 21 ☆ Elmwood zinc mine. Nov 77, 20

☆ Young mill. Nov 77, 26 Tennessee Valley Authority:

uranium exploration. Oct 77, 22

Terchick, A.A.: & Coal Preparation. Mar 77, 42

Conquista uranium mill expands. Sep 77, 13 Texasgulf, Inc.:

at Pilbara, Australia. Jan 77, 33 signs copper toll pact. Mar 77, 28 slows Kidd Creek development. Dec 77, 16 to close Fannet. May 77, 18

Thailand:

New Jersey Zinc to develop refinery. Feb 77, 28 Thakur, P.D., Davis, J.G.: ☆ How to Plan for Me-thane Control in Underground Coal Mines. Oct

Thickeners, Thickening (see also Dewatering, Filter-

rearth bottom. Aug 77, 36

Timberline Minerals, Inc.: drills molybdenum property. Dec 77, 18 Tin, Tin Ores:

Golder Associates, Comibol, Bolivia, project. Aug 77, 18

Titanium, Titanium Ores: rannual review, Mar 77, 78

Titanium Minerals: F.W. Wessel. Mar 77, 78

Tosco Corp.: awarded USBM contract. Aug 77, 16 ☆ Trained Manpower Provided by Mining Technology Programs: E.L. Dunning, Jan 77, 48

Transportation (see also Conveying, Hoisting, Load-ing, Materials Handling Systems, Pipelines, Railway Systems, Trucks): ☆ at Peak Downs mine. Jan 77, 30 coal handling, Hay Point, Australia. Jan 77, 30 ☆ Ertsberg. Jun 77, 33

☆ railroads, coal slurry lines. Oct 77, 49

Trucks (see also Loading, Materials Handling Sys-

tems, Transportation):
:: dispatching, Cyprus Pima. Aug 77, 40
Tunneling (see also Mining Methods, Rapid Excava-

tion, Underground Mining): ☆ spiral drill-and-blast concept. Jun 77, 29

& Underground Extraction Techniques for Thick Coal Seams: C. Bise, R. Ramani, R. Stefanko. Oct 77, 35

Underground Mining (see also Mine Design, Mining Methods, Ventilation):

☆ annual review. Feb 77, 42 ☆ Asarco Tennessee mines. Nov 77, 21 Caladay property negotiations. Jun 77, 19 de coal, annual review. Mar 77, 38 coal, diesel safety. Dec 77, 9

Consol, hydraulic mining system, Loveridge mine DIA strikes vein. Jul 77, 28

☆ falling barometer affects mine sealant. Jun 77, ☆ friction rock stabilizers. Jul 77, 59 Ireland, Navan mine on-stream. Aug 77, 18 ☆ Kennecott apprenticeship program. Jun 77, 37
☆ lead-zinc ores, Mt. Isa. Nov 77, 24

☆ longwall, coal. Mar 77, 41 ☆ Madrigal mine, Peru. Nov 77, 22 ★ methane control, planning. Oct 77, 41
 ★ productivity, coal. Mar 77, 38

☆ roof bolting improvements. Jul 77, 51 room-and-pillar, coal. Mar 77, 41 ☆ spiral drill-and-blast concept. Jun 77, 29

☆ Stekenjokk mine, Sweden. Dec 77, 22

thick coal seams. Oct 77, 35 ☆ trackless mining, Kamioka. Nov 77, 23 United Canso strikes gold vein. Jun 77, 22 ☆ yielding rockbolt. Apr 77, 53

Union Carbide Corp.: explores Wyoming uranium. Dec 77, 18 tungsten mine on-stream. Aug 77, 16 Union Miniere Co. of Belgium:

# Elmwood mine, Tennessee, Nov 77, 20 Oracle Ridge development. Sep 77, 21 world copper reserves adequate. Aug 77, 12

United States: and International Mineral News Briefs. May 77, 16; Jun 77, 18; Jul 77, 28; Aug 77, 16; Sep 77, 24; Oct 77, 22; Nov 77, 18; Dec 77, 18

US Bureau of Mines (USBM): barometric effect, radon concentration. Dec 77,

 college enrollment survey. Jan 77, 40 estimates world copper reserves. Aug 77, 12 methane extraction test. Jan 77, 14 ☆ Mineral Availability System. Sep 77, 43 mining depleted oil reserves. Jun 77, 21 \( \triangle \) studies coal recovery. Oct 77, 48 Tosco Corp. contract. Aug 77, 16 uranium, Deep Creek Range, Utah. Nov 77, 18 ventilation research. Oct 77, 11 vielding rockbolt. Apr 77, 53

US Geological Survey (USGS): director replaced. Oct 77, 27 ☆ federal leasing, May 77, 23 Idaho EIS published. Nov 77, 10 Idaho geothermal project. Aug 77, 16 maps environmental values. Apr 77, 25 new exploration method, Coeur d'Alenes. Jul 77,

precious metal from sewage sludge. May 77, 11 regulations in Florida. Feb 77, 15 studies thorium for ERDA. Sep 77, 20 uranium traces, New Mexico, Utah. Jun 77, 18

US Government:

Bureau of Land Management claim-recording requirements. Apr 77, 17 defendant in class action suit. Mar 77, 28 ☆ federal leasing. May 77, 23 Nevada miners fight regulations. Mar 77, 13 Dept. of Commerce

trade mission to Turkey, Greece. Feb 77, 24 Dept. of Energy:

surveys uranium prices. Dec 77, 17 underground gasification contract. Dec 77. 16 Dept. of the Interior:

federal coal lease regulations. Feb 77, 14 Secretary outlines policy. Mar 77, 11 Energy Research & Development Admin. (ERDA): Amoco to study H-Coal process. Nov 77, 18

high-cost US uranium resources Aug 77, 15 low-rank coal utilization. Jul 77, 24 1976 uranium drilling figures. Apr 77, 21 NURE program. Feb 77, 57 sites nuclear reprocessing plant. Apr 77, 24 study, future prices. Jan 77, 10 uranium mine, mill expenditures. Jul 77, 13 uranium resources, Utah. Feb 77, 26 Environmental Protection Agency (EPA): ambient air standards. Jul 77, 17

court backs Bunker Hill. Sep 77, 22 Kennecott, air quality deadline. Apr 77, 18 legal action against Asarco. Sep 77, 25 reassesses SO<sub>2</sub> standards. Apr 77, 34 Safe Drinking Water Act. Feb 77, 70

and Asarco confer on Tacoma smelter. Jun 77,

uranium solution mining emissions. Feb 77, 48 Mining Enforcement & Safety Admin. (MESA): ground check monitors required. May 77, 16 ☆ mine blasting accidents, 75-76. Nov 77, 36 penalty assessments, record level. Sep 77, 14 proposed surface mining standards. Mar 77, 14 reports mine fatalities. Mar 77, 28

US Steel Corp.:

fair marketing policy asked. Jul 77, 21 ore cars for Minntac. Aug 77, 17 with CVRD in Brazil. Dec 77, 40

sessing Utah resources. Feb 77, 26 Atlas Corp. continues exploration. Feb 77, 28 Australia allows mining. Oct 77, 14 ☆ Australian position. Jan 77, 16 Bear Creek complex opens. Oct 77, 7 byproduct from phosphates. Dec 77, 18 developments at Cyprus. Nov 77, 7 discovery in South Dakota. Mar 77, 28 EPRI study, US resources. Jun 77, 18 ERDA, Bendix study formation. Feb 77, 28 ERDA, drilling statistics. Apr 77, 21 ERDA estimates US reserves. Aug 77, 15 ERDA, future prices. Jan 77, 10 ERDA, mining, milling expenditures. Jul 77, 13 exploration, Navajo reservation. Apr 77, 24 expiration, varyor teservation. Apr 17. 24 find in Ontario. Aug 77, 18 Freeport, Uncle Sam project. Feb 77, 17 Hope output to United Nuclear. Jun 77, 19 land speculation in Washington. May 77, 16 ☆ Mary Kathleen mine. Jan 77, 24 Mary Kathleen, new financing. Nov 77, 18 Mary Kathleen production. Mar 77, 30 Midnite Mines to explore Indian reservation. Jul 77. 28

mill expansion, Conquista. Sep 77, 13 Minerals Engineering Co., reserves. Jun 77, 18 Otter Exploration N.L. to explore for. Jun 77, 21 Panel mine reactivated, Ontario. Jan 77, 13 Pioneer Uravan plans uranium/vanadium mill. Aug 77, 16 price fixing charges. Jan 77, 12

Ranchers-Homestake sales. Mar 77, 26 Rio Puerco mine, Kerr-McGee. Apr 77, 24 Saskatchewan slows development, Mar 77, 16 ☆ solution mining review. Feb 77, 46 Sundance project, Wyo. Oct 77, 13 survey US marketing. Dec 77, 17 three firms to explore in western states. Feb 77, 28 USBM discovery, Deep Creek Range, Utah. Nov

USGS, traces in New Mexico, Utah. Jun 77, 18 Urangesellschaft drill hole evaluation. Jun 77, 21 Utah mill site studied. Dec 77, 18 Western Nuclear develops. Apr 77, 24 & Uranium Mining in Australia: Dreams and Re-

ality. Jan 77, 20

Utah:

uranium mill site considered. Dec 77, 18 uranium resources assessed. Feb 77, 26

Utah Development Co.: in Australia. Jan 77, 28

Van Besien, A.C.: & Geological Engineering. Feb

Ventilation:

twin fans installed, Denison Mines. Aug 77, 18 USBM research. Oct 77, 11 & Vermiculite, R.J. Kujawa, Mar 77, 79

Wabush Mines Ltd.:

environmental award. Nov 77, 18

Wadsworth, M.E.: \$\primale Interfacing Technologies in Solution Mining. Dec 77, 30

Washington:

planned zirconium mine. Mar 77, 28 Witco opens diatomite mine. Dec 77, 10

Waste Disposal and Use (see also Environmental Control):

☆ at Broken Hill operation. Nov 77, 29

dat Park City mill. Nov 77, 26

☆ at Young mill. Nov 77, 26

at Zinc Corp. Ltc. Nov 77, 29

☆ coal refuse disposal. Mar 77, 43

nuclear waste. Apr 77, 51 Resource Conservation Act. Nov 77, 7

☆ waste treatment, zinc refinery. Nov 77, 32 Weisman, W.K.: 

Fluorspar. Mar 77, 59

Wessel, F.W.: & Titanium Minerals. Mar 77, 78

West Virginia University: studies soils. Nov 77, 18

Western Aluminum Producers:

study electric power supply. Sep 77, 25 Western Mines Ltd.:

Lynx mine. Jan 77, 13

Western Mining Corp. Ltd.: ☆ Australian uranium reserves outlook. Jan 77, 17

☆ Yeelirrie ore body. Jan 77, 23 Western Nuclear, Inc.:

to sell Allied Nuclear. Sep 77, 19

Washington uranium mine. Apr 77, 24 Western Selcast Pty. Ltd.:

markets Agnew nickel. Sep 77, 27

Western Zirconium, Inc.:

plans new mine. Mar 77, 28 Westinghouse Electric Corp.:

uranium price-fixing. Jan 77, 12

☆ What's Ahead in Minerals and Metals Develop-ment in Brazil: F.N. Parks, E.J. Schreiber. Dec 77.40

☆ Who Will Move the Coal? Oct 77, 49

☆ Why Stekenjokk Chose All-Hydraulic Drills. Dec 77. 28

Wiebmer, J.D.: & Hard-Rock Mining Apprenticeship Program Launched at Kennecott's Tintic Mines Division. June 77, 37

 ★ Lignite and North Dakota: A Cautious Response to Accelerated Mining Demands. Aug 77, 24 Wilson, E.B.: A Research and Development. Mar

77, 47 Wilson, F.K.: 

The Ertsberg: A Case History of Mine Development. Jun 77, 33

Exxon plans Crandon mine. Oct 77, 18

Witco Chemical Corp.:

opens diatomite mine. Dec 77, 10

Woodlawn Mines Ltd.:

new mine in Canada. Nov 77, 28

Wyoming:

Bear Creek uranium complex. Oct 77, 7 USGS maps environmental values. Apr 77, 25

Wyoming Mineral Corp.:

extracts uranium from phosphate. Apr 77, 24 uranium test for Bruni field. Feb 77, 46

☆ Yielding Rockbolt Holds Promise for Future Ground Control Applications: J. Conway, D. Cox, A. Gooch. Apr 77, 53

annual review. Mar 77, 79 Zeolites: T.H. Eyde. Mar 77, 79

Zinc:

☆ Asarco Tennessee mines. Nov 77, 21 ☆ at Mt. Isa. Nov 77, 24 Cominco, Trail smelter improvements. Jun 77, 13 cost, air pollution control, Nov 77, 5

DIA strikes Ag-Pb-Zn vein. Jul 77, 28 discovery in Kotzebue, Alaska. Nov 77, 18 denergy consumption during refining. Nov 77,

Espindeza recovery process. Jul 77, 30

Exxon plans Crandon mine. Oct 77, 18 Houston Oil & Minerals, Creede option. Aug 77,

Ireland, Navan mine on-stream. Aug 77, 18 ☆ new discoveries in US. Feb 77, 51 NJZ to develop Thai refinery. Feb 77, 28 recovery at Balmat mill. Nov 77 25 recovery at Park City. Nov 77, 26 recovery at Rosebery mill. Nov 77, 28 recovery at Young mill. Nov 77, 25

\$ SME meeting focus on, Nov 77, 20 ☆ Stekenjokk mine, Sweden. Dec 77, 22

☆ trackless mining, Kamioka. Nov 77, 23

Zine Corp. Ltd.: ☆ retreating tailings. Nov 77, 29

Zirconium:

☆ annual review. Mar 77, 80

mine planned in Washington. Mar 77, 28 ☆ Zirconium and Hafnium: E. Guccione. Mar 77,

## PART 11. SME News

AIME:

Annual Meeting, 1977. Jan 77, 63, 66, 70, 71, 90; Feb 77,

111, 114, 118; Mar 77, 102; May 77, 20 Annual Meeting, 1978. Jan 77, 70, Jun 77, 67. Jul 77, 372, 398; Aug 77, 59; Oct 77, 81; Nov 77, 50, 51; Dec 77, 49, 55.
Annual Meeting, 1979. Oct 77, 75

annual report. Apr 77, 75

business meeting. Jan 77, 70

bylaws. Jan 77, 64 Council of Economics officer nominees, 1978. Jul

dues allocation. Feb 77, 117

insurance. Feb 77, 116 joint conference—AIME and the Australasian Institute of Mining & Metallurgy. Sep 77, 86

local sections. Jul 77, 352

officers. Jul 77, 87

officer nominees, 1978. Jul 77, 36

president. Oct 77, 80

publication prices, 1977, Jan 77, 68 student chapters. Jul 77, 353

Associations

Association of Exploration Geochemists. Sep 77, 83

Big Sandy-Elkhorn Coal Operators Association. Colorado Mining Association. May 77, 60; Jun 77,

67 Colorado School of Mines Alumni Association.

Aug 77, 55 Lead Development Association. Apr 77, 73 Lead Industries Association. Apr 77, 73

Montana Tech Alumni Association. Sep 77, 85 New Mexico Tech Alumni Association. Aug 77, 55

Northwest Mining Association. Aug 77, 55; Nov

Swedish Mining Association. Apr 77, 74; Dec 77, 49

Awards:

AIME Honorary Membership. Feb 77, 104; May 77.59

Douglas, James Gold Medal. Feb 77, 105 Eavenson, Howard N. Award, Feb 77, 108

Engineer of the Year. May 77, 65 Environmental Conservation Distinguished Service Award. Feb 77, 107

Fairless, Benjamin F. Award. Feb 77, 105

Gaudin, Antoine M. Award. Feb 77, 108; Apr 77, 72; Dec 77, 49

Hardinge, Hal Williams Award. Feb 77, 105; May 77, 61

Hardy, Robert Lansing Gold Medal Award, Jul 77, 395

Hofmann Memorial Prize Competition. Apr 77,

Hoover Medal, Mar 77, 95 Jackling, Daniel C. Award. Feb 77, 109; Jun 77,

33, Dec 77, 49 Lead Development Association. Apr 77, 73 Lead Industries Association. Apr 77, 73 Legion of Honor. Dec 77, 51

Lucas, Anthony F. Gold Medal. Feb 77, 105 McConnell, Robert Earll Award. Feb 77, 106 Michigan Technological University Board of

Control Silver Medal. Oct 77, 70 Mineral Economics Award. Feb 77, 107 Mineral Industry Education Award. Feb 77, 108 Old Timers Club Award. Aug 77, 55

Outstanding Engineer. May 77, 65 Outstanding Student Chapter Contest. Feb 77. 111

Peele, Robert Memorial Award. Feb 77, 109 Ramsay, Erskine Medal. Feb 77, 106 Rand, Charles F. Memorial Gold Medal. Feb 77,

Raymond, Rossiter W. Memorial Award. Feb 77. 106

Richards, Robert H. Award, Feb 77, 107 Saunders, William Lawrence Gold Medal. Feb 77, 107

SME Best Presentation Award. Feb 77, 108 SME Distinguished Member Award. Jan 77, 69 Student Prize Paper Contest. Feb 77, 111 Taggart, Arthur F. Award. Feb 77, 109 van Diest Gold Medal. Jun 77, 67 West Coast Engineer, May 77, 65 Wilson, Matthew J. and Anne C., Outstanding Teaching Award. May 77, 63

Young Engineer Award. Jul 77, 80

Coal Division:

Executive Committee. Feb 77, 118 officer nominees, 1978. Jul 77, 44 officers and committees. Jul 77, 86 scholarships. Jun 77, 64

Companies

Councils:

Asarco. Mar 77, 100 Amax. Mar 77, 102 Anaconda Co. Mar 77, 100, 101 Ansul Co. Apr 77, 69 Atlas Copco. Apr 77, 74; Dec 77, 49 BHRA Fluid Engineering. Jun 77, 63

Duval Corp. Dec 77, 54 Energy Bureau, Inc. May 77, 65 Fluor Utah, Inc. Nov 77, 54

Ingersoll Rand Co. Apr 77, 74; Dec 77, 49 International Minerals and Chemical Corp. Nov 77.50

Island Creek Coal Co. Mar 77, 102 Meramec Mining Co. Apr 77, 74 Monterey Coal Co. Apr 77, 74

Mountain States Research and Development. May 77, 61

Occidental Chemical Co. Oct 77, 75 Overseas Private Investment Corp. Dec 77, 54 Penn Virginia Corp. Jan 77, 67 US Steel. Oct 77, 76

Western Energy Co. Mar 77, 100 Westmoreland Coal Co. Jan 77, 67 Young's Machine Co. Apr 77, 74

Alabama Surface Mining Reclamation Council. Jul 77, 395 Greater Los Angeles Chapter National Safety Council. Apr 77, 70

Los Angeles Council of Engineers and Scientists. Nov 77, 50

Fellowships. Mar 77, 101 Fine Grind. Jan 77, 66; Mar 77, 100; Apr 77, 72; May 77, 64; Jun 77, 66; Sep 77, 86 Foundations:

Amax Foundation. Mar 77, 102 Asarco Foundation. Jan 77, 64 Brown Foundation, Mar 77, 95

Colorado Mining Association Education Founda-tion, Inc. May 77, 60 Colorado School of Mines Foundation. Mar 77. 95

Engineering Foundation, The. Oct 77, 81 Gulf Oil Foundation. Jun 77, 67 Halliburton Education Foundation. Jan 77, 65 National Science Foundation. Feb 77, 112

Pittsburgh Plate Glass Industries Foundation, Jul 77, 397

Westmoreland Coal Co. and Penn Virginia Corp. Foundation. Jan 77, 67

Fulbright-Hays Program. Oct 77, 81

Funds:

Hayden Endowment. Feb 77, 113 Niggemyer, Carl Edward Memorial Scholarship Fund. Aug 77, 57

Student Assistantship Fund. May 77, 61

Government, Energy, and Minerals Committee. Jul

GEM Facts. Jan 77, 68; Feb 77, 116; Apr 77, 73; May 77, 65; Oct 77, 76; Nov 77, 54

Grants:

Amax Foundation. Mar 77, 102 Asarco Foundation. Jan 77, 64 Brown Foundation. Mar 77, 95 Colorado School of Mines. Jun 77, 67 Colorado School of Mines Foundation. Mar 77. 95

Engineering Foundation, The. Oct 77, 81 Engineering Research Initiation Grant. Oct 77,

Gulf Oil Foundation. Jun 77, 67 Halliburton Education Foundation. Jan 77, 65 National Institute of Occupational Safety and Health. Jan 77, 67 National Science Foundation. Feb 77, 112

Montana Tech. Mar 77, 102 US Bureau of Mines. Feb 77, 112

In the Aggregate. Jan 77, 65; Feb 77, 113; Mar 77, 97; Apr 77, 69; May 77, 61; Jun 77, 63; Aug 77, 59; Sep 77, 83; Oct 77, 79; Nov 77, 53; Dec 77, 55

Industrial Minerals Division:

Officer Nominees, 1978. Jul 77, 44 officers and committees. Jul 77, 86

Institutes:

Alabama Mining Institute. Jul 77, 395 American Powder Metallurgy Institute. Dec 77,

Australasian Institute of Mining and Metallurgy. Jan 77, 70; Sep 77, 86

Canadian Institute of Mining and Metallurgy. Jul 77.398 Clean Energy Research Institute. Mar 77, 100

IIT Research Institute. Aug 77, 59 Institute for Briquetting and Agglomeration. Jul 77, 398

Institute of Mining and Metallurgy. Apr 77, 74 Institute of Nonferrous Metallurgy. Sep 77, 82 Institute of Petroleum. Jan 77, 67

Massachusetts Institute of Technology. Jul 77,

Mekhanobr Institute. Sep 77, 82 Mining Institute in Leningrad. Sep 77, 82 National Institute of Occupational Safety and Health. Jan 77, 67

Krumb, Henry Lecturers. Feb 77, 118; Jun 77, 63; Jun 77, 65; Dec 77, 54

Legal notice. Nov 77, 54 Letters to the Editor. Feb 77, 7; Mar 77, 5; May 77, 4, Sep 77, 4

Local Sections

Carolinas Section. Jul 77, 397; Sep 77, 83; Nov 77,50 Central Appalachian Section. Apr 77, 69

Central Tennessee Subsection. Mar 77, 98 Cleveland Section. Dec 77, 51 Colorado Plateau Section. Aug 77, 55 Florida Section. Mar 77, 95; Mar 77, 102; May 77, 65; Oct 77, 75 Intermountain Section. Oct 77, 76

Minnesota Section. Nov 77, 14; Dec 77, 55 Morenci Section. Jun 77, 65 New York Section. Mar 77, 99

North Dakota Section. Nov 77, 50 North Pacific Section. Mar 77, 97 Oregon Section. Nov 77, 55

Pittsburgh Section. Jan 77, 70; Feb 77, 118 San Francisco Section. Dec 77, 54 Sierra Nevada Section. Nov 77, 54

South Texas Minerals Section. Jul 77, 397 Southeastern Utah Section. Mar 77, 95 Southern California Section. Jul 77, 17; Nov 77, 50,54

Tucson Section. May 77, 61; Jun 77, 63

Upper Peninsula Section. Aug 77, 55 Utah Section. Mar 77, 102

Washington, D.C. Section. May 77, 65; Jul 77, 399; Aug 77, 58 Mineral Economics Subsection. Jul 77, 399; Aug

77, 58; Sep 77, 82

Meetings

AIME Annual Meeting, 1977. Jan 77, 63, 66, 70, 71, 90; Feb 77, 111, 114, 118; Mar 77, 102; May 77, 20

AIME Annual Meeting, 1978. Jan 77, 70; Jun 77, 67; Jul 77, 372, 398; Aug 77, 59; Oct 77, 81; Nov 77, 50, 51; Dec 77, 49, 55

AIME Annual Meeting, 1979. Oct 77, 75 AIME Council of Economics, Annual Meeting. Aug 77, 58; Sep 77, 82

AIME-University of Minnesota Symposium. Mar 77, 102

Agglomeration Symposium. Jan 77, 63, 66, 90 Alternative Energy Sources Symposium. Mar 77, 100

American Association for the Advancement of Science. Apr 77, 11

American Ceramic Society Fall Meeting, May 77, 65

American Mining Congress. Nov 77, 5 American Powder Metallurgy Institute. Dec 77,

51 American Society for Testing and Materials. Jan

77.66 An Assessment of Environmental Regulations Conference. May 77, 64

Andimec. 2nd. Nov 77, 53 Annual Conference of Metallurgists, 16th. Jan 77,

Arizona Conference of AIME, Annual Meeting. Nov 77, 55

Bergbau '76. Dec 77, 49

Bergbau '81. Dec 77, 49

Big Sandy-Elkhorn Coal Operators Association. Apr 77, 69

Brazilian Geologic Congress, 29th. Mar 77, 101 CIM District 4 Meeting. Jul 77, 398 Carolinas Section Fall Meeting. Sep 77, 83; Nov

77 50 Central Appalachian Section. Apr 77, 69 Circum-Pacific Energy and Mineral Resources Conference, 1st. Feb 77, 113

Citizens Council for Land Use and Education, Inc. Apr 77, 74

Clay Minerals Conference. Mar 77, 101 Cleveland Section Meeting. Dec 77, 51 Explosives and Blasting Technique Conference,

4th. Sep 77, 83 Forum for Industry Input into Academic Currie ula for Mineral Processing and Extractive Metallurgy. Jan 77, 70

Forum on the Geology of Industrial Minerals, 14th Annual. Nov 77, 55

General Assembly of Engineers Joint Council. Mar 77, 95 Hydrometallurgy Section of the Metallurgical

Society of CIM, Annual Meeting. Jan 77, 70 In-Situ Uranium Leach Symposium. Jul 77, 397; Aug 77, 57 Institute for Briquetting and Agglomerating Con-

ference, 15th Biennial. Jul 77, 398 Intermountain Minerals Conference, 13th Annual. Jul 77, 395

International Coal Preparation Congress, 8th. Oct 77, 75

International Conference on Internal and External Protection of Pipes, 2nd. Jun 77, 63 International Committee for the Study of Baux-

ites, Alumina, and Aluminum. Mar 77, 101 International Conference and Exhibit of the Instrument Society of America. Dec 77, 54 International Geochemical Exploration Sym-

posium, 7th. Sep 77, 83 International Mineral Processing Congress, 13th.

International Resource Management. Jan 77, 70 International Symposium on the Application of Computers and Operations Research in the Mineral Industries, 16th. Nov 77, 55

International Symposium on the Application of Computers and Operations Research in the Mineral Industries, 15th. Jan 77, 70; Sep 77, 85 International Tin Symposium. May 77, 60 Investment Seminars. Dec 77, 54

Joint Conference—AIME and the Australasian In-

stitute of Mining & Metallurgy. Sep 77, 86

Lignite Symposium. Feb 77, 118

Mineral Economics Symposium, 3rd Annual. Jul 77, 399; Aug 77, 58

Mineral Processing Plant Design Symposium. Jun 77, 70; Get 77, 81 Mineral Waste Utilization Symposium, 6th. Aug

77.59

Mining & Metallurgy Div. of the Instrument Society of America, Annual Meeting. Sep 77, 82 Mining-Petroleum Days. Aug 77, 55

Mining Symposium, 39th Annual. Nov 77, 14 Minnesota Section, 51st Annual Meeting. Nov 77, 14; Dec 77, 55

National Engineering Issues Conclave, 1st. Oct 77,80

National Engineers Week. May 77, 65 North Dakota Section. Nov 77, 50

Northwest Mining Association Convention, 83rd Annual. Aug 77, 55; Nov 77, 54

Offshore Technology Conference, 8th. Jan 77, 67 Offshore Technology Conference, 9th. Feb 77, 21; Apr 77, 22

Offshore Technology Conference, 10th. Jul 77,

Outlook for Coal, The. May 77, 65

Pacific Northwest Metals and Minerals Confer-ence. Mar 77, 97; Nov 77, 55

Pacific Southwest Minerals, Energy, and Environment Conference. Nov 77, 50
Pan American Congress of Mechanical, Electrical,

and Allied Engineering Branches, 7th Biannual. Mar 77, 101

Pittsburgh Section. Jan 77, 70

SME Coal Division. Apr 77, 69 SME Fall Meeting, 1977. Jan 77, 63; Feb 77, 111. 117; Mar 77, 19, 95; Apr 77, 67, 73, 74; May 59; Jun 77, 61, 67; Jul 77, 372, 397, 398; Aug 77, 44, 55; Sep 77, 23, 45, 85; Nov 77, 20; Dec 77,52

Ladies' Program. Jun 77, 61 SME Fall Meeting, 1978. Oct 77, 75; Nov 77, 53 SPE European Offshore Petroleum Conference and Exhibition. Jan 77, 67

San Francisco Section Meeting. Dec 77, 54 Society for Experimental Stress Analysis Spring Meeting. Apr 77, 74

outhern California Section. Jul 77, 17 Technoforest, 1st. Nov 77, 53 Technomin, 3rd. Nov 77, 53

UMR-MEC Conference on Energy, 4th Annual. Mar 77, 96; Aug 77, 59 Underwater Mining Institute, 8th. Oct 77, 75

University of Minnesota Mining Symposium, 39th. Nov 77, 14; Dec 77, 55 Western Safety Congress and Exhibits, 24th

Annual. Apr 77, 70 Westinghouse International School for Environmental Management, 8th. May 77, 63

Mining and Exploration Division: officer nominees, 1978. Jul 77, 47 officers and committees. Jul 77, 86 student session. Feb 77, 111

Mineral Processing Division: Education Committee. Mar 77, 102 officer nominees, 1978. Jul 77, 49 officers and committees. Jul 77, 87

scholarships. Mar 77, 102 Ministry of Mining and Metallurgy. May 77, 60

Akre, Robert L. Jul 77, 396 Bannerman, Harold. Feb 77, 112 Barber, Leon F. May 77, 60 Billings, Thomas Parry. Aug 77, 56 Bond, Fred C. Apr 77, 68 Botsford, Clarence Allan. May 77, 60 Bradbury, Harry W. May 77, 60 Brown, Lester, R., Jr. Mar 77, 96 Chapman, Edward P., Jr. Sep 77, 84 Cummins, Arthur B. Jul 77, 396 Darby, George M. Mar 77, 96 Evans, James D.F., II. Apr 77, 68 Farmin, Rollin. Dec 77, 50 Fleming, Russell C. Sep 77, 84 Fletcher, Andrew. Apr 77, 68 Garcia, Jose A. Aug 77, 56 Harris, Henry M. Oct 77, 82 Herndon, Thomas Ralph. Jun 77, 62 Ingersoll, Guy E. Aug 77, 56 Labounsky, Alexander N. Jan 77, 64 Lehner, Robert E. Nov 77, 52 Lemmon, Dwight M. Apr 77, 68 Lynch, William W. Jan 77, 64

# INDEX OF ADVERTISERS

Ad Poge	Inquiry Number	Ad Page	Inquiry Number
Barber-Greene Company Mintec/International Division 1 Media Graphics	1	Marion Power Shavel Company, Inc	9
Dupont de Nemours & Co., Inc. Elastomers-Adiprene 12, 13	2, 20	Metal Traders, Inc. 47  Centormedia Inc.	
N. W. Ayer ABH International Eimco Mining Machinery Division		National Mine Service CompanyCover 3  Downing Industrial Advertising, Inc.	
Envirotech CorporationCover 4 David W. Evans, Inc.	3	Permatex Industrial Products 14  Contemporary Marketing, Inc.	12
Gardner-Denver Company Drilling Machine Division 6	4	Precision Lapping & Optical Co., Inc. 20 Herbert Lindauer Associates	13
Glenn Bozell & Jacobs, Inc.  Getman Corporation 18  Guest Advertising, Inc.	5	Stearns-Roger, Inc. 16  Mosher & Associates, Inc. Thoms Foundries, Inc. 11	16
Helwig Carbon Products, Inc. 20  Maercklein Advertising, Inc.	6	Basinger & Associates TOTCO 15, 17, 19	
Hughes Tool Company Cover 2	7	John A. Ripley Advertising, Inc. Wemco, Division 8	
Jim Walter Resources, Inc. 4, 5 Sankey 2 Inc.	8	Envirotech Corporation C. A. Mickelsen Advertising	

Advertising Sales Manager Robert C. Holland 35 Sleepy Hollow Road Upper Saddle River, N.J. 07458

201/327-3890

#### **ADVERTISING SALES STAFF**

**Editorial & Advertising Offices** Located at: 540 Arapeen Drive, Salt Lake City, Utah 84108 801-582-2744

Western Regional Manager Patrick J. O'Rorke 3918 Mt. Blackburn Ave. San Diego, Calif. 92111

### **SME NEWS INDEX**

(continued from page 77)

MacVean, Gordon C. Feb 77, 112 Mawby, Sir Maurice. Oct 77, 82 Melvin, John Harper, Nov 77, 52 Michaelson, Charles Donald. Apr 77, 68 Montoulieu de la Jorre, Edward. Dec 77, 50 Munro, Neil. Oct 77, 82 Philippi, Laurel B. Aug 77, 56 Pipe, Darwin J. Nov 77, 52 Reinmiller, Frank W. Jun 77, 62 Rumfelt, Henry F. May 77, 60 Schultz, William, Nov 77, 52 Slane, Salvador Pena. Sep 77, 84 Staggs, William M. Mar 77, 96 St. Clair, Stuart. Jun 77, 62 Steidle, Edward. Dec 77, 50 Stewart, William P. Nov 77, 52 Tremlett, Christopher P. Jun 77, 62 Trevorrow, George C. Apr 77, 68 Varlamoff, Nicolas. Feb 77, 112 von Bolhar, Edgar J. Apr 77, 68 Ware, Louis. Jul 77, 396

Personal News. Jan 77, 60; Feb 77, 92; Mar 77, 84; Apr 77, 64; May 77, 47; Jun 77, 57; Jul 77, 377; Aug 77, 66; Sep 77, 77; Oct 77, 55; Nov 77, 46;

Power Line. Mar 77, 98; Apr 77, 70; May 77, 62; Jun 77, 64; Aug 77, 58; Sep 77, 87

Rausch, Donald O., 1977 SME-AIME President. Mar 77. 8

Rock in the Box. Jan 77, 67; Feb 77, 115; Mar 77, 99; Apr 77, 71; May 77, 63; Jun 77, 65; Aug 77, 57; Sep 77, 85; Nov 77, 51; Dec 77, 51

SME: Fall Meeting, 1977, Jan 77, 63; Feb 77, 111, 117; Mar 77, 19, 95; Apr 77, 67, 73, 74; May 77, 59; Jun 77, 61, 67; Jul 77, 372, 398; Aug 44, 55; Sep 77, 23, 45, 85; Nov 77, 20; Dec 77, 52 Ladies' Program. Jun 77, 61 Fall Meeting, 1978. Oct 77, 75; Nov 77, 53 Locator Service. Jan 77, 101; Feb 77, 119; Mar 77, 105; Apr 77, 84; Jun 77, 70 membership. Jan 77, 100; Feb 77, 121; Mar 77, 104; Apr 77, 83; May 77, 68; Jun 77, 70; Jul 77, 401; Aug 77, 68; Sep 77, 89; Nov 77, 58; Dec

77,58 membership development contest. Sep 77, 63 membership directory. Jan 77, 98; Feb 77, 34; Jul 77, 83; Nov 77, 55

officer nominees, 1978. Jul 77, 40 officers and committees. Jul 77, 85 preprints, Annual Meeting, 1977. Apr 77, 79 preprints, Fall Meeting, 1977. Nov 77, 56 president, Mar 77, 8 qualifications for membership. Sep 77, 74 staff changes. Jun 77, 67 staff responsibilities. Jul 77, 89

student paper contest. Feb 77, 111 Scholarships: Amax. Mar 77, 102 Coal Division. Jun 77, 64 Duval Corp. Dec 77, 54 Intermountain Section. Oct 77, 76 Island Creek Coal Co. Mar 77, 102 Mineral Processing Division. Mar 77, 102 Montana Tech. Jul 77, 397; Nov 77, 54 Niggemyer, Carl Edward Memorial Scholarship Fund. Aug 77, 57 Pennsylvania State University. Jun 77, 64 Penn Virginia Corp. Jan 77, 67 Westmoreland Coal Co. Jan 77, 67

Short Courses

Economic Principles for Coal Property Valuation. Jun 77, 67 Longwall and Shortwall Mining. Apr 77, 67 Materials Handling-Part I. Nov 77, 53 Open Pit Mine Planning and Design. Nov 77, 50

Statistical Analysis of Industrial Mineral Data. Nov 77, 50

Sierra Club. Jan 77, 67

Societies:

American Ceramic Society, May 77, 65 American Society for Nondestructive Testing. Nov 77, 55 American Society for Testing and Materials. Jan

77.66 American Society of Civil Engineers. May 77, 65

American Society of Metals. Jun 77, 67; Nov 77, 55

American Society of Metals, Puget Sound Chap-American Welding Society. Nov 77, 55 Engineering Societies Commission on Energy Inc.

Apr 77, 72 Florida Engineering Society. May 77, 65 Instrument Society of America. Sep 77, 82; Nov 77, 55; Dec 77, 54

Metallurgical Society of AIME, The. Jun 77, 67 Metallurgical Society of CIM. Jan 77, 70

Mining and Metallurgical Society of America. Jan 77, 70; Mar 77, 100 Society of Petroleum Engineers of AIME. Jan 77,

Student Chapters:

University of Alabama. Feb 77, 111 University of Florida. Mar 77, 102 University of Missouri-Rolla. Jul 77, 395; Dec 77,

**US Government:** 

Dept. of Commerce. Jun 77, 66; Dec 77, 54 Energy Research and Development Admin. Feb 77, 118; Apr 77, 72 Mining and Construction Equipment Trade Mis-

sion. Jun 77, 66

Universities: Colorado School of Mines. Jan 77, 66, 70; Feb 77, 111, Mar 77, 102; Apr 77, 74; May 77, 59, 60; Jun 77, 67

Columbia University. Feb 77, 111 Escola de Minas de Ouro Preto. Mar 77, 101 Lehigh University. Mar 77, 102

Michigan Technological University. Feb 77, 113;

Aug 77, 55; Oct 77, 79 Montana Tech. Jan 77, 64, 65, 67; Feb 77, 112; Mar 77, 100, 102; Jul 77, 397; Nov 77, 54 Pennsylvania State University. May 77, 63; Jun

University of Alabama, Jul 77, 395 University of Alaska. Oct 77, 75

University of Arizona. Oct 77, 81; Nov 77, 55; Dec 77, 49 University of California-Berkeley. Feb 77, 111

University of Idaho, Nov 77, 54 University of Kent. Jun 77, 63 University of London. Jul 77, 398 University of Minnesota-Duluth. Mar 77, 102;

Nov 77, 14; Dec 77, 55 University of Missouri-Rolla. Mar 77, 96; Jul 77, 395; Aug 77, 57, 59; Dec 77, 49 University of Nevada-Reno. Feb 77, 115

University of North Dakota. Feb 77, 118 University of Wisconsin. Oct 77, 75 West Virginia University. Feb 77, 111

WAAIMES. Jan 77, 66; Feb 77, 113; May 77, 59, 61; Jun 77, 61; Jul 77, 397, 399; Aug 77, 55; Oct 77, 75; Nov 77, 51

